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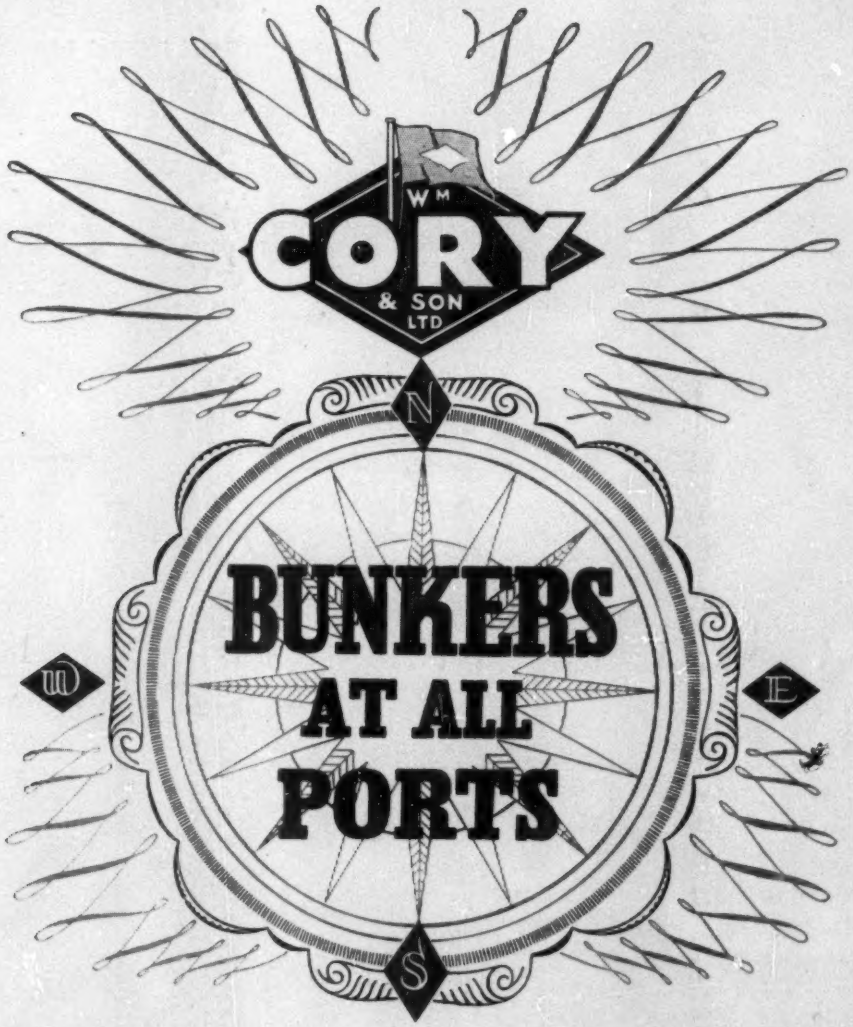

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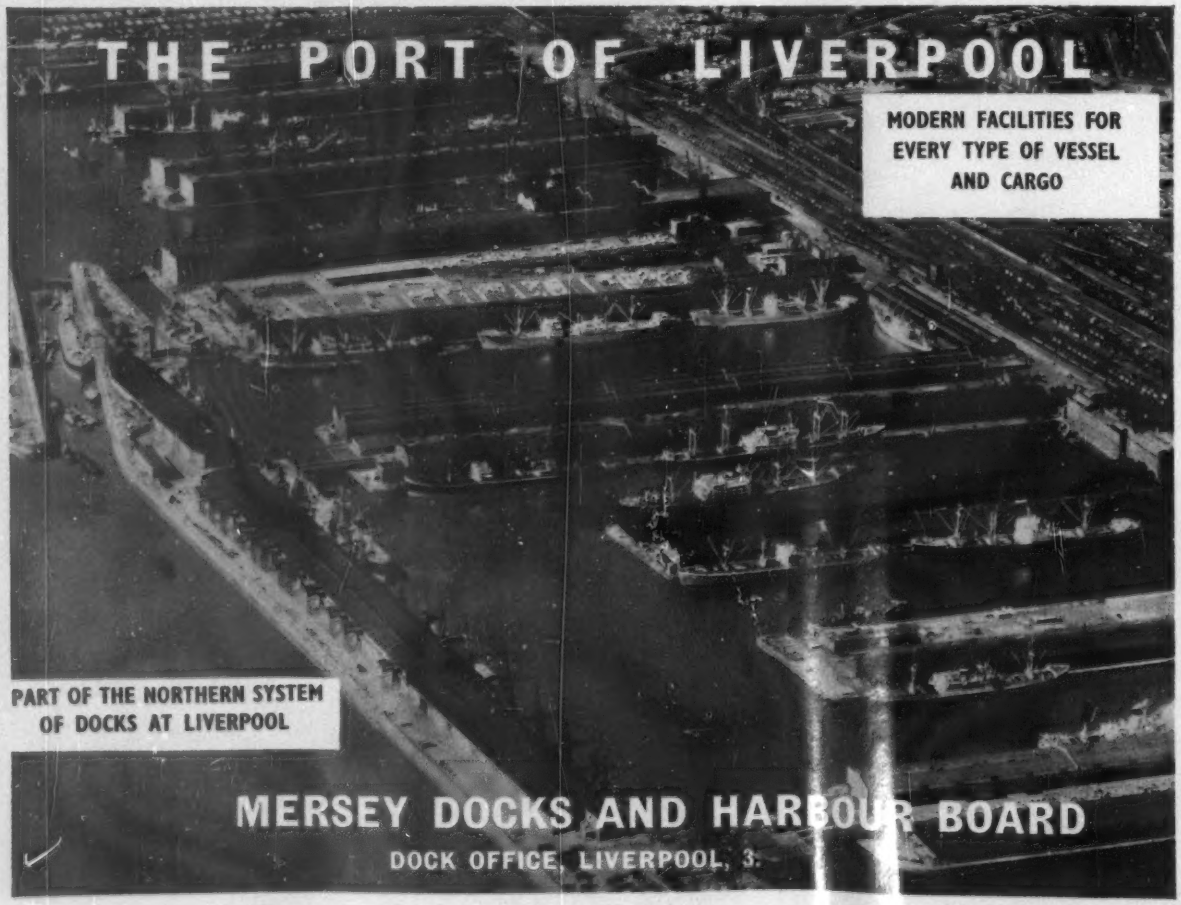
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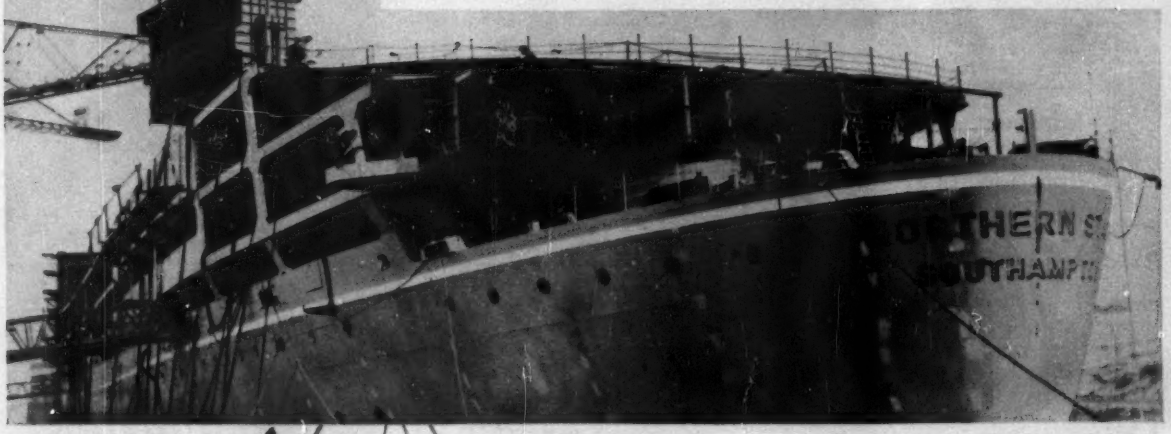

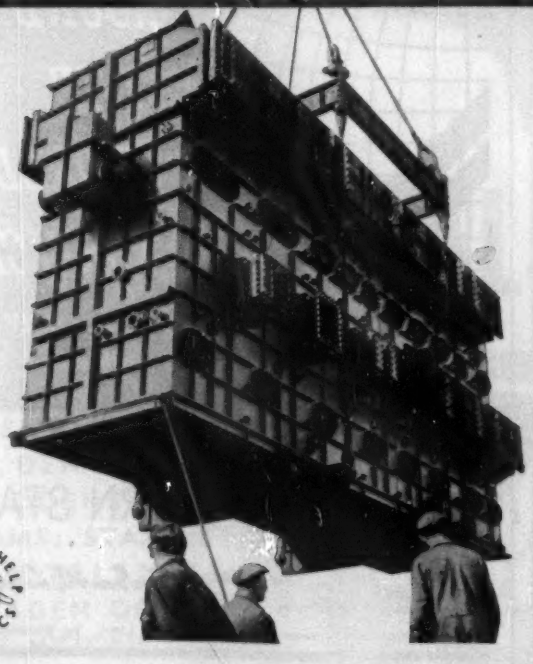

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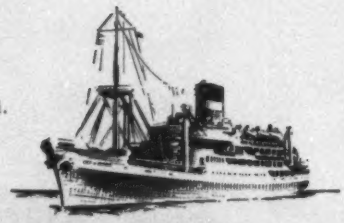

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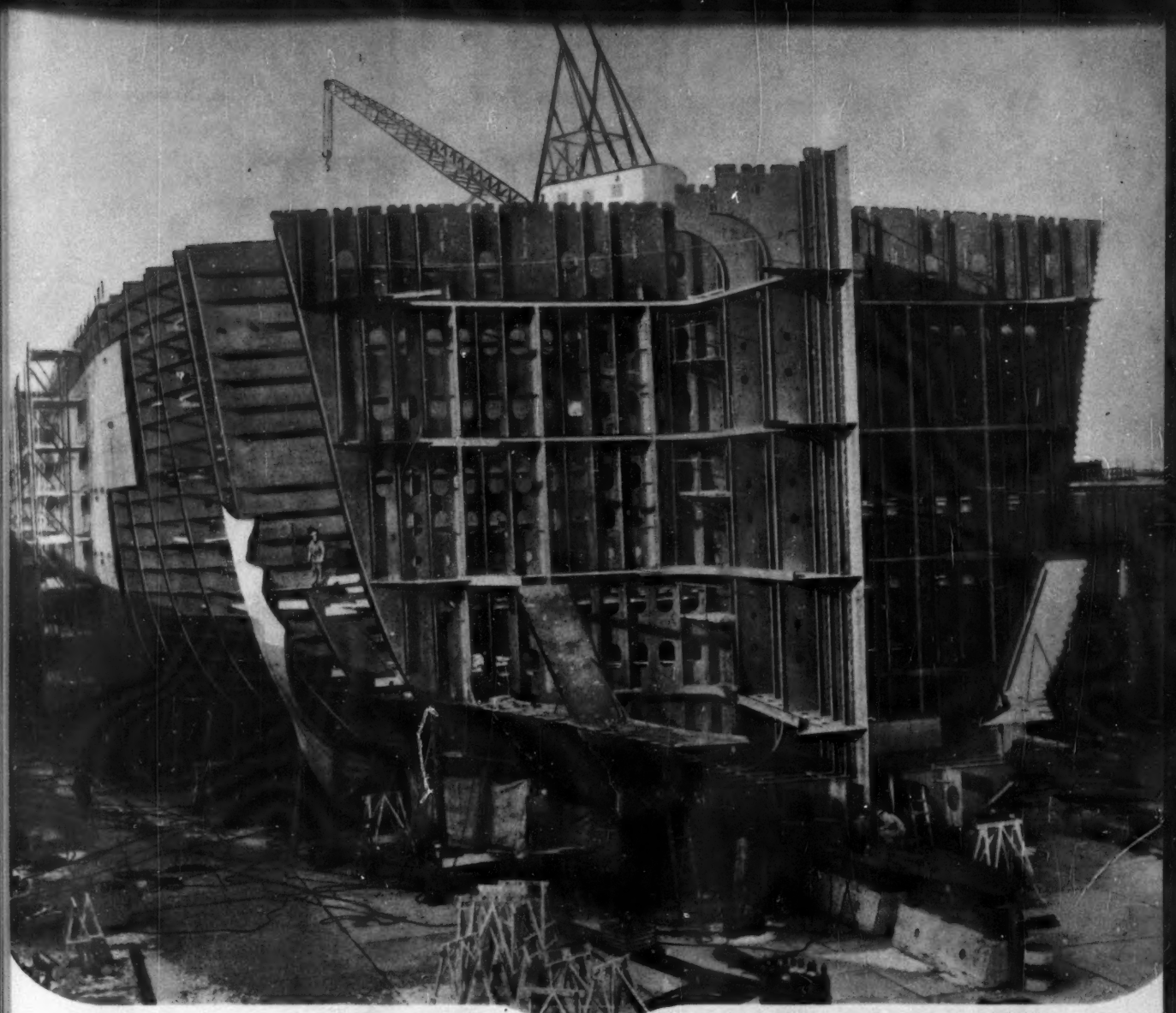

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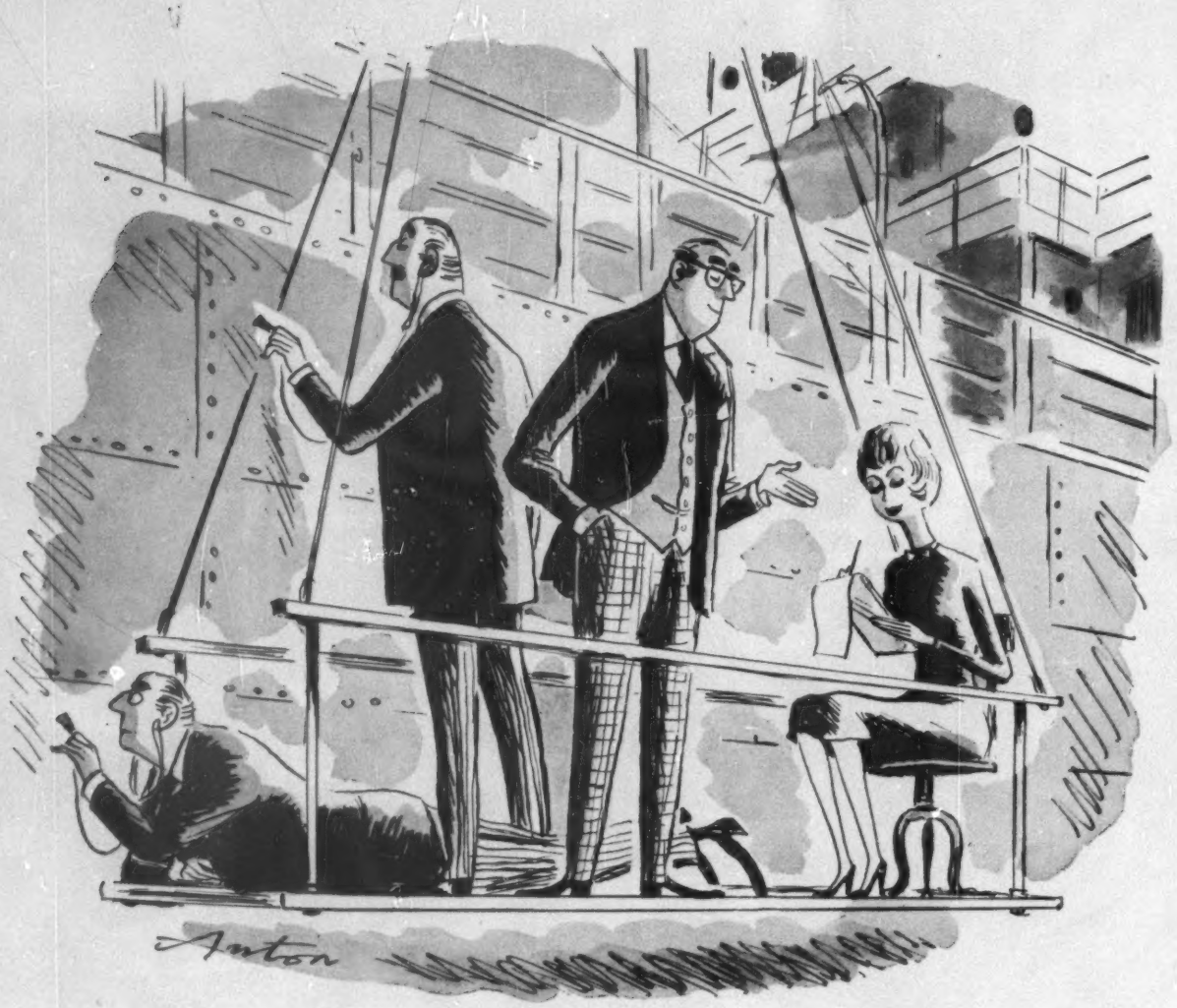

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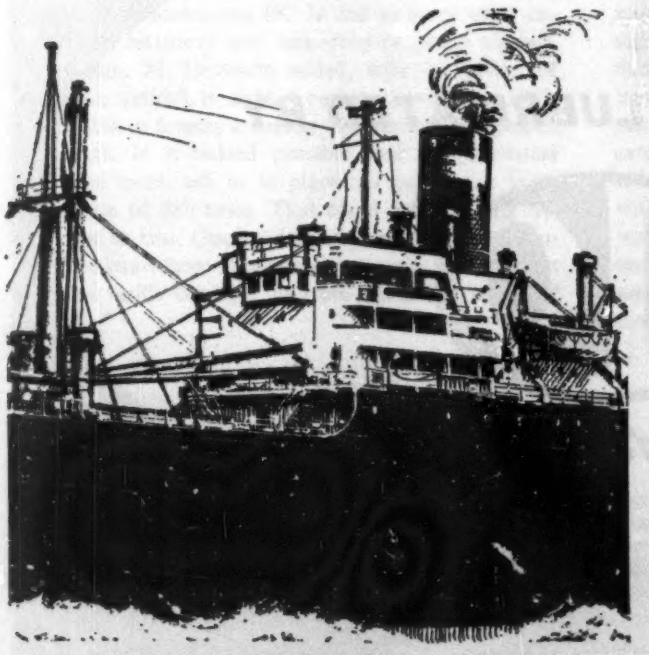

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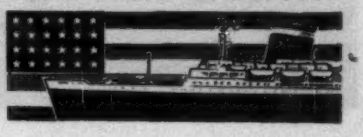

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THE SHIPPING WORLD

CROSSING THE ATLANTIC IN TWO HOURS

INTERESTING proposals with regard to the introduction in civil aviation of supersonic aircraft were made at the last annual general meeting of IATA (International Air Transport Association) in Sydney (Australia) by M. W. Deswarte, president of Sabena Belgian World Airlines. In the first place M. Deswarte urged the operators not to commit the same errors as those committed on entering the jet era. He declared: "Many of us have, this year, carried back and forth over the Atlantic, at high speed and tremendous cost, thousands of empty seats. From the standpoint of world economy this wasteful, sorry state of affairs is no better than the burning of wheat or coffee in the face of billions of starving people."

It was easy to foresee, he carried on, that 1961, when all major carriers would be fully equipped with big jets, would be a disastrous year for the whole of the industry—even without the political crisis or threats of Cuba, Berlin, Bizerta and others. We did nothing about it, and many of us are now facing losses, aggravated by the unsolved problem of the unsold and unamortised Super Constellations and DC-7s and so many other excellent and relatively new turboprop or piston aircraft. Once again, M. Deswarte added, with the advent of supersonic aircraft in sight, " perhaps as early as 1967, we are able to foresee a similar disaster, of even greater magnitude. It is indeed possible that manufacturers will, once more, ask us to place our orders five years in advance of deliveries. That could mean during the next year or two. Once orders are placed by one company, we know from experience that no belated attempt to adjust tariffs can save us from the consequences of our folly."

M. Deswarte recommended that all social and physical implications should be very closely considered before putting supersonic aircraft in service. He emphasised that speed alone was not the yardstick of human progress and that crossing the Atlantic in two hours instead of eight was not a vital requirement but a pure luxury. M. Deswarte then drew a rapid picture of a scheme that would result in taking care not "to spend millions of public money without a reasonable profit for this public" while "avoiding any decision or resolution that would delay progress when it could be profitable to the public." He suggested that for the supersonic aircraft the companies should agree to charge a fare of, for instance, 50 per cent more than that of first class, with an annual decrease of 10 per cent. "In this way, the supersonic would at first be complementary to the jets. They could then be acquired progressively by airlines without compromising the normal depreciation of the present jets in seven or 10 years time. The financing of the new aircraft, which will weigh very heavily, could be extended over a sufficient number of years. After five years, as the number of supersonics in operation increases, as well as the total number of passengers, all first-class traffic could be transferred without increase of fare to the faster of the two types, and the jets of today would then take care of the economy traffic. "Only then would we have a simple and logical fare structure. No more aircraft with an expensive two-class configuration. The fare would represent exactly what is sold—speed, and not such futile factors as seat spacing or food quality, which are of no interest to passengers whose flight lasts less than eight hours."

Current Events

More Shipbuilding Orders

IN the last few weeks there has been a welcome increase in the number of new contracts placed with United Kingdom shipyards. Of particular interest is the order placed by the Blue Funnel Line for a fast passenger-and-cargo vessel with John Brown & Co (Clydebank) Ltd. To be named *Centaur*, she is intended for service between Western Australia and South East Asia. Of about 8,000 tons gross, she will have entirely air-conditioned accommodation for about 200 passengers in one class. She will also have space for refrigerated and other cargo and will be fitted for the carriage of sheep and cattle. She will have a service speed of 20 knots, provided by two sets of diesel engines, totalling 16,500 shp, to be built by Burmeister & Wain at Copenhagen. Another substantial order has been obtained by Seawork Ltd in the face of intense competition from Continental yards. This order, which was negotiated with Grangesberg-Oxelosund Trafik A/B is worth more than £500,000, is for three shiphandling and salvage tugs of 1,600 shp. Seawork has accepted this contract with penalty clauses pertaining to failure to obtain a static bollard pull of 22 tons and to delays in delivery, which is scheduled for September, October and November next. It is to be noted here that there are many

foreign subcontractors for this order. Main and auxiliary diesels will be supplied by General Motors, towing winches and steering gear will come from Norway and the electrical equipment from Denmark. The obtaining of orders of this kind involve the use of highly expert technicians and salesmen, the cost of which could only be economical in conjunction with a high rate of turnover. This has certainly been achieved, for the two small Seawork yards at Gateshead and Appledore have work on hand currently worth some £3,000,000, and about two-thirds of this is for export.

Cancellation

THE decision of Court Line Ltd to cancel an order which they had placed with Bartram & Sons Ltd, Sunderland, for a 13,000-dwt cargo ship, and to buy instead a 1961-built motor bulk carrier of 22,000 dwt, is an unfortunate one as far as the Sunderland shipbuilders are concerned. The reasons for these decisions, however, have been that the directors thought it advisable to diversify the fleet and at the same time try to fill a modern need. It will be recalled that in his annual statement (*SW*, 22.11.61) the Hon. J. P. Philipps referred to the growing burden of shipowners' costs and the difficulties still being faced by shipowners, and specially by British tramp shipowners. The ship which Court Line have purchased at a cost of £1,115,000 is the *Hector Halcyon*, which was completed earlier in 1961 by the Belgian yard of Jos. Boel & Fils for Hector Whaling Ltd. The ship which has been cancelled would have cost £1,200,000. Court Line have the 13,000-dwt *Arlington Court* fitting out by Bartrams and she is due for delivery next spring. The ship which has been cancelled would have been similar to the *Arlington Court*.

N.R.D.C.

PUBLISHED last week was the 12th annual report of the National Research Development Corporation. This is an organisation which in its early years was of little immediate interest to the shipping industry, but which is growing in importance as it turns its attention to an increasing number of projects of potential marine importance. Its major projects at the present time include the hovercraft, the fuel cell and the Dracone, all of which are worth attention. This point having been made, it must be admitted that the report gives little that is new. The Corporation's expenditure on development in the year ending on June 30 last was £812,000, and this may be compared with a previous highest figure of £592,000 two years before. Of this figure, £475,000—or well over half —was spent on the three projects named above. Other projects include such things as a privately-invented infinitely variable speed gear, and the development of a vaccine for the common cold. The report shows that the N.R.D.C. now has rights in 3,400 British and overseas patents and patent applications, derived chiefly from publicly supported research carried out in Government research establishments, the Research Councils and the universities. At the same time, over 495 licence agreements with British firms were in force, while agreements with overseas firms totalled 48, these being mainly with U.S. firms.

More Passenger Liners for Sale

Two big passenger liners which will be available for delivery to new owners—probably shipbreakers—early next year are the two oldest units of the fleet of the P & O-Orient Lines, the 22,270-grt *Strathnaver* and the 20,186-grt *Orontes*. As yet all the company has said is that they will be sold, but it seems more than likely that they will end their days in the hands of shipbreakers. On the other hand it is understood that the company would examine carefully any proposals relative to the ships being used for trading purposes, although obviously such proposals would have to exclude any service in which they might trade in opposition to routes served by the P & O group. It will be recalled that earlier in the year the *Strathaird* was sold to the Shun Fung Iron Works, Hong Kong, for £382,500 (*SW*, 3.5.61) and that earlier again two smaller liners, the *Corfu* and *Carthage*, were sold to Japanese breakers (*SW*, 29.3.61). Obviously Hong Kong and Japanese shipbreakers will be showing interest in the two ships now being offered, but no doubt other shipbreaking organisations in Europe will be thinking carefully over the prospects of handling these ships for demolition. In addition there is always the prospect that the British Iron & Steel Corporation (Salvage) Ltd might be interested in the ships to keep a couple of the big British shipbreaking yards occupied. Both the *Strathnaver* and the *Orontes* were built at the Barrow-in-Furness shipyard of Vickers-Armstrongs, the *Strathnaver* in 1931 and the *Orontes* in 1929. During the Second World War the *Strathnaver* served as a troopship and carried a total of 128,792 Service personnel and steamed 352,443 miles. The *Orontes* also went trooping, and carried nearly 125,000 troops in addition to civilians and prisoners of war, and steamed over 490,000 miles. The decision to withdraw the two liners and offer them for sale has been expedited because of a decision by the Australian Government not to take up large numbers of berths which had been provisionally booked for British emigrants during the first five months of 1962.

An Unusual Visit

THE placing of an order for the building of a large passenger liner provides work not only for the shipyard, but to many industries throughout the country. Many men and women are engaged in producing different components from steel plates and sections to filing cabinets, from generators to washing machines, from carpets and curtains to plastic tops for tables—a never-ending stream of requirements. But many of those engaged in this work never see the ship for which the product of their skill is destined. Many, even, do not know where their products will go. With the new *Transvaal Castle* there will be a difference, for before the ship sails on her maiden voyage a party of over 30 men and women from firms of sub-contractors drawn from every part of the country will pay a visit to Southampton to see over the ship they have helped to build. The invitation was sent by the Union-Castle Line to the heads of the firms to send a representative who had actually been engaged on work for some part of the ship. In every quarter the idea was received with enthusiasm and it has aroused great interest among the workers themselves. Over the past few weeks the work of selecting the candidates has been going on—either by drawing, by voting or by record of service—and soon the names of the fortunate persons chosen will be known. Travel will be so timed that they will all arrive at Southampton in the late afternoon and will be on board for dinner; after dinner there will be entertainment in the cinema, and they will sleep on the ship that night. The next morning they will all have the opportunity to see over the ship and in particular to see the very parts for which they themselves have been responsible.

Hague Rules Decision

STEVEDORES do not have the benefit of a bill of lading incorporating the Hague Rules in a claim against them for negligence in handling cargo. This is the effect of the recent House of Lords decision in *Scruttons Ltd* v *Midland Silicones Ltd*. This test case appeal has long been awaited

and it will be interesting to watch the reaction of both shipowners and those concerned with cargo handling as to how these new responsibilities are adjusted.

This is a case where stevedores employed by the shipowners to discharge cargo, negligently dropped a drum of chemical overside on to a lorry at the Royal Albert Dock, London. The loss to the owner of the drum was about £600 and the stevedores were sued for this amount. In the action they sought to limit their liability to that under the United States Carriage of Goods by Sea Act 1936, to which the bill of lading was subject, namely U.S. $500, despite that they, as stevedores, were not a party to the bill of lading issued by the ocean carrier. Discussing the appeal of the stevedores, Viscount Simonds in his judgment pointed out that it was an elementary principle of English law that only a person who was party to a contract could sue or be sued on it. This had been established in *Dunlop Pneumatic Tyre Co Ltd* v *Selfridge & Co Ltd.* (*1915*). Reference was also made to the case of *Elder Dempster & Co Ltd* v *Paterson Zochonis & Co Ltd (1924)*, on which the stevedores relied for their immunity. His Lordship referred to similar circumstances in cases heard in the Australian Courts and in the United States Supreme Court, and it was gratifying to find that these judgments confirmed the opinions which his Lordship invited the House to adopt. Lord Reid, Lord Keith of Avonholm and Lord Morris of Borth-y-Gest concurred. Lord Denning delivered a dissenting opinion. While their Lordships all made some reference to the implications which this development of the law may possibly hold, Lord Denning extended his opinion to comment on the serious potentialities to which the decision in this case exposes shipowners and others concerned with shipping and handling cargo. If a cargo owner could sue the stevedore for his negligence in unloading, why should one not sue the master and officers of the ship for their negligence in the management and navigation of the ship? This was, his Lordship said, a gap in the commercial law and he would not give the fundamental principle of the nineteenth century unbridled scope to defeat the intentions of businessmen.

Tests of Squatting

THE PHENOMENON known as "squat," whereby a ship travelling in shallow water will sink lower than her normal draught, is well known, and can be a source of trouble. Some full-scale experimental work on squat has been carried out in the United States by the U.S. Army Corps of Engineers. It is reported in a paper published by the Esso Standard Division of the Humble Oil & Refining Company, abstracts from which appear in the current issue of *Sealift Magazine*, the journal of the U.S. Military Sea Transportation Service. The tests were carried out in the Delaware River, using ships of 550ft and over in length. Observations were made from the shore at three points, with respective depths of water of 80 to 100ft, 31.1 to 32.5ft, and 31 to 34.5ft. The general procedure used was first to determine the height above water when the vessel was stationary of marks painted on the bow and stern. This was done when the ship was still alongside the pier. The marks had previously been painted at known heights above the ship's keel. As the vessel passed each observation station the level of the marks was noted with reference to the station, and as soon afterwards as possible the water level was similarly determined. Weather conditions, list and other variables made exact observations impossible, but the work did demonstrate clearly that ships squat both forward and aft; and that as might be expected, squat increases with increase of ship speed and with reduction in depth of water under the keel. A rough rule which emerged can be expressed as follows: when the still-water depth under the keel is less than 10 per cent of the draught, the increase of draught in feet is about one-fifth of the speed in knots. The moral for navigating officers—when in doubt, reduce speed to the minimum consistent with good steerage.

Collapsible Containers

THE BASIC TROUBLE of the container is its inflexibility—whether the word is used in the literal or the metaphorical sense. The folding container has not so far proved very successful, and so an examination of the economics of containers for a given route must take account of the return of empties, unless the shipowner is fortunate enough to have suitable cargoes moving in equal quantities in either direction. A new variant on the folding container is now being manufactured in Northern Ireland, and has proved itself in the carriage of sugar. Known as the Pacobel, it is made of nylon covered with Neoprene synthetic rubber, and has metal ribs which hold it rigid when full and allow containers to be stacked one on another without crushing their contents. Empty, each weighs only 40 lb and folds away into a plastic bag. Full, they can hold up to one ton. Until recently, sugar for industrial purposes has been imported into Northern Ireland in 1-cwt and 2-cwt bags, as the normal technique of using road tankers with the sugar in granulated or liquid form is apparently not economic with a ferry crossing. Using the containers, a load of 10 is placed on a trailer which makes the journey by road and ferry. The containers sit on pallets and are handled by fork-lift trucks. This technique would seem to have wider possibilities, and might usefully be explored for other cargoes which are normally carried in sacks or bags. Those which have been successfully tried for experimental purposes during the development of the Pacobel include cement, oils and potatoes. This type of container is made by Elliot Equipment Ltd at the firm's factory at Lisburn, Co. Antrim, where the main product is inflatable liferafts.

U.S. Immigration Laws

THE United States Board of Immigration Appeals has remitted a fine that had been imposed on the owner of a vessel in respect of the failure to detain on board an alien member of the crew who had been refused a landing permit. The case (the *Bellina*) provokes unusual interest in that the member of the crew concerned did not in fact land; he was drowned in an abortive attempt to land, apparently by jumping over the side of the vessel, having first donned a life jacket. When a conditional landing permit was refused the master of the vessel took over the seaman's passport and had the vessel's agents arrange for shore guards to stay on the vessel from 7 a.m. until midnight, during which hours a launch was running to and from the vessel at her anchorage in the stream. Despite these precautions a fine was imposed, but on appeal the Board remarked that the purpose of the immigration laws in this particular respect was to prevent the illegal landing of members of the crew, and that in this particular case the purpose of the law was accomplished in that the drowning of the man prevented his landing. It was further remarked that no statute should be so construed to lead to an absurd result. It was argued against the owners that it was not the efforts of their agents and master that prevented the man landing, but the Court of Appeal said that a landing is the essence of the violation and without such landing there can be no fine. The question arises had the body actually been washed up on to the shore and not found floating some distance off, would this have been regarded as a landing? The Court has consistently ruled that where a man has made even a brief contact with the shore there has been a landing and a technical violation of the law.

ON THE "BALTIC"

ACTIVITY AT STEADILY DECREASING RATES

By BALTRADER

As the holiday period approaches prompt ships in some areas, and this particularly applies to Liberties in the Far East, still appear to be vulnerable and liable to have to accept low rates without much argument. Nevertheless, the recent activity at steadily decreasing rates has considerably eased the pressure on most owners. Consequently there appears to be a fairly general feeling among those whose ships are not too prompt that this is hardly the time to attempt new business and that as far as possible the market should be left severely alone until the New Year.

In the meantime the recent fixture of a tanker for grain from the U.S. Gulf to Japan was an interesting but unsatisfactory development for dry-cargo ship owners, for until recently Japanese receivers were among the few who were not prepared to accept grain "ex tankers." The ice was first broken a few months ago when several of these vessels were fixed with maize from South Africa to Japan, but as far as is known this is the first instance of a shipment from the U.S. Gulf to Japan in a tanker. No doubt it will not be the last, for several merchants have been expressing interest in repeating the experiment, and they were quoting last week on the basis of owners providing portable discharging gear. Fortunately, however, there is no suggestion that charterers in the U.S. Gulf/Japan trade are so tempted by the lower rates paid that they will be interested in nothing else but tankers and, in fact, inquiry continues and several dry-cargo ships have been taken since the fixture of a tanker was reported.

Advantages of Large Bulk Carriers

One of the most recent fixtures in the above trade was that of a 20,000-tons bulk carrier and such ships will become increasingly common on the freight markets in the months ahead. Only last week a well-known British company surprised the market by announcing that it had bought a 22,000-tons bulk carrier, in other words a vessel with a carrying capacity which is at least one-third greater than any previous unit of their fleet. There is no doubt that charterers of bulk commodities such as coal and grain are learning to appreciate the advantages of these large, fast vessels, always provided, of course, that the ports at both ends can accommodate them and that the receivers can handle and dispose of such large cargoes without too much difficulty.

No doubt, of course, there will be occasions in the future when vessels of 20,000-tons capacity will prove difficult to fix because of a temporary shortage of large cargoes in a given area, but in case of need the owner can always agree to cut his size for a voyage or two. This was always a comforting thought for the owners of 14/15,000-tonners when they first came out, but it is safe to say the number of occasions when such a step has proved necessary in recent years must be infinitesimal Not so long ago 20,000-tonners were reported to have cut their size to 17,000 tons in order to carry coal from New South Wales to Japan, but at the rates paid the results must have still been most satisfactory for the owners. Even in this particular example, cut sizes will not be necessary for long, for at Newcastle the authorities are taking urgent steps to deepen the port approaches.

Reports received in London last week suggested that Japanese charterers, who in their various commodity fields are a major force in the freight markets these days, are keeping a close watch on their Chinese neighbours in case the latter should break out with another big importing programme from Australia and/or British Columbia. No doubt this watchful attitude is fully justified, for any substantial increase in Chinese chartering activity is bound to have an effect on Far Eastern markets which, from the Japanese point of view, have reached satisfactorily low levels in recent months. Should inquiry expand, however, it is not likely to have a direct and immediate effect on distressed Liberty type tonnage in the Eastern waters, for the simple reason that the Chinese normally prefer better class tonnage.

The Freight Markets

There were further rate reductions on a number of markets last week but in the trans-Atlantic grain trades for example there was little change in the general level. Fixtures included *Suerte* with wheat from St John/Halifax to picked ports U.K. at 42s 6d, January 1/15, and the handy-sized *Camellia* with corn from Baltimore, Philadelphia or Norfolk to Cork and Dublin at 51s, January 15/February 5. The *Alexander T. Wood* was fixed with 18,000 tons of heavy grain/soyas from the U.S. North of Hatteras to Hull at 40s, January 15/30, and the *Phoebus* takes heavy grain from the U.S. North of Hatteras to Antwerp, Rotterdam or Amsterdam at $4.50 free discharge, December 27/January 5.

There were one or two fixtures in the Cuban sugar trades including a vessel to Tokyo/Hakata range at 92s 6d f.i.o. and free taxes, loading as far ahead as March/April next. Another vessel was reported fixed with sugar from Cuba to Hamburg at 55s f.i.o. and free taxes, option Baltic discharge at 60s, January 5/20. There was little to report in the Hampton Roads coal trades but fixtures included a vessel with 20,000 tons of coal to Holland at 24s free discharge for January, and *Korthi* to Rio de Janeiro at $6.40, January 10/25.

The River Plate market continued quiet but fixtures included a vessel with heavy grain to Antwerp/Hamburg range at 66s, option U.K. at 71s, full clause 6, January/February. South African fixtures included an Amstel vessel with kaffir corn from Durban to Avonmouth at 52s 6d, January 15/February 5, and *Panaghiotis* with pig iron from Durban to Kobe or Yokohama at 60s f.i.o., January 4/31. There was more Australian grain activity during the week but rates in most directions were lower. Fixtures included a vessel with bulk wheat ex silo from Eastern States Australia to the U.K. at 82s 6d, option London at 80s, Antwerp/Hamburg range discharge at 77s 6d, March 15/April 30, and several vessels were fixed to Spain including *Duke of Mistra* with bulk wheat ex silo from West Australia to the Spanish Mediterranean at 55s free discharge, option Spanish Atlantic at 57s 6d, February 1/24.

On the North Pacific the *Maria Stathatos*, 10,000 dwt for cargo, 499,000 cu ft bale, was fixed with lumber and general cargo from British Columbia to the U.K. at $10.50 f.i.o., January 2/15. The *Phaethon* takes 20,000 tons of heavy grain from the U.S. North Pacific to Antwerp/Hamburg range at $6.25 free discharge, option Antwerp, Rotterdam or Amsterdam at $6, barley at 25 cents extra, January 15/26.

There was little timecharter activity but fixtures included *Vinni* (ms), 13,450 dwt, 636,000 cu ft bale, 13½ knots on 20 tons fuel, 20s 9d per ton, delivery Antwerp/Hamburg range, 6/9 months trading, end December.

Nuclear Reactions

SOME COMMENTS ON THE PRESENT SITUATION

A PAPER to the Institute of Nuclear Engineers given by Capt H. F. Atkins, R.N. (Retd.), of Vickers Nuclear Engineering Ltd, on December 8, included some fairly explosive comments in the author's characteristic style on the present situation of nuclear power in the marine field. Capt Atkins feels that industry has done its bit and shown its willingness and capability, but that money for the first ship reactor must be found by the Government. He suggested that the steam-cooled heavy water reactor (which has been developed by Vickers Nuclear Engineering) is seaworthy, is wholly British, and should be developed forthwith and sent to sea.

In his paper, Capt Atkins recounts how the U.K.A.E.A., compelled at first by force of circumstances (the need for plutonium bombs and temporary shortage of coal), to develop graphite reactors, have gone on backing these reactors, which are complete outsiders for ship propulsion, and refusing to lay off on any of those which have got a sporting chance. An M.P. spoke of the Micawber-like remarks on marine reactors in the A.E.A. 7th annual report; this described their attitude precisely—always waiting for something to turn up, and assuring marine engineers and shipbuilders that it will do so. It is high time it did, but without a drastic change of policy at Risley, it will not come from there. The A.E.A's wish not to dissipate its resources is understandable, but it is hard to condone spending money on the A.G.R. while ship propulsion is neglected.

Only two large gas-cooled reactors have been sold abroad, to Italy and Japan, giving little work at home and small profit; there seems no market for the A.G.R. An economic reactor of small or medium power developed for ships would meet a wide demand on shore, in the underdeveloped continents and in the high fuel cost areas of industrial countries.

Work on Plutonium

The British Shipbuilding Research Association team who have done useful work on the economics of nuclear ships and decided that no ship reactor burning uranium could be competitive, has for years been working on the nuclear physics of plutonium. The price of plutonium is fixed arbitrarily. Fast reactors may not in fact breed, and produce more plutonium than they burn, so the only glut likely is a temporary one when nuclear disarmament allows bombs to be turned into power. Plutonium fuel adds unnecessary dangers in a ship. The proper way to use plutonium is to burn it in the reactors in which it is made, by increasing the life of the fuel elements. In any case such basic research is Harwell's job and B.S.R.A. should be working directly on a ship reactor.

Guy Wilson, appointed Rear-Admiral Nuclear Propulsion at the Admiralty in 1957, started a study of a natural uranium graphite moderated gas-cooled reactor, applied to a high-powered (86,000 shp) tanker. Everyone knew it was a forlorn hope, but the exercise was done because this was the only type of reactor being developed in the U.K. and about which we knew enough to gain experience of the marine problems. No enriched uranium was then available in this country, to fuel a better reactor. The installation came out at 10,000 tons weight, even though containment was rudimentary and there was no collision protection. The fundamental difficulties of size and weight were great and the comparative economics very poor. The next design, by the A.E.A. and Lloyd's Register, clung to graphite and investigated a highly rated Calder Hall design using enriched fuel in magnox cans.

By this time Numarcom, the committee for the application of nuclear power to marine purposes, had been formed. It was known as the Galbraith Committee after its first chairman, the Hon. T. Galbraith M.P., Civil Lord of the Admiralty. It includes representatives of the Admiralty, A.E.A., Ministry of Transport, Lloyd's Register of Shipping, British Shipbuilding Research Association and shipowners.

The first study for Numarcom, carried out by the A.E.A. and Yarrow-Admiralty Research Department, was based on the A.E.A. prototype advanced gas-cooled reactor (A.G.R.) using beryllium clad uranium dioxide fuel elements. It weighed 5,000 tons and showed no promise of a competitive reactor. This can now be seen to be a blessing in disguise; beryllium canning has proved most elusive and the A.G.R. of doubtful use even on shore.

Proposals from Industry

Meanwhile a number of industrial firms had proposed ship reactor systems to the Admiralty. Details were worked out with Y-A.R.D. so that submissions to Numarcom were based on similar criteria to that for the A.G.R.—a fast naval tanker of about 30,000 tons displacement and 50,000 shp. Later the sums were repeated for 20,000 shp.

The firms with their American associates in the case of the first three were:

(i) A.E.I.-John Thompson with G.E.C. of U.S.A.; direct boiling water reactor.
(ii) Mitchell Engineering with Combustion Engineering Inc, of U.S.A.; indirect boiling water reactor.
(iii) Babcock & Wilcox with their U.S. Corporation; pressurised water reactor.
(iv) De Havilland; a design of high temperature gas-cooled reactor based on DRAGON.
(v) Hawker Siddeley Nuclear Power Co; organic moderated reactor.
(vi) G.E.C.-Simon Carves; graphite moderated gas-cooled reactor with an original design of crosflow fuel elements, highly forced.
(vii) Vickers Nuclear Engineering (Rolls-Royce, Foster Wheeler and Vickers); a design of steam-cooled heavy water moderated reactor.

An exhibition of large-scale models was shown in London in May 1959, and aroused great interest, being seen by Ministers, M.P.'s, Admiralty, Ministry of Transport and other Government departments, these design studies cost the firms well over £500,000. The Admiralty made the comprehensive technical reports for the fast naval tanker systems available to Numarcom and the systems were scaled down to 20,000 shp at the latter's request. A technical sub-committee, Sub-Numarcom, was set up to consider the eight designs. On it were represented Admiralty, Ministry of Transport, A.E.A. General Council of British Shipping, Lloyd's Register and British Shipbuilding Research Association, Parnetrada and Y-A.R.D., with the Director-General Ships of the Admiralty as chairman. This sub-committee, now known as Tech-Numarcom, is the centre of all technical deliberations on nuclear marine propulsion at national level. Sub-Numarcom decided that the water reactors and perhaps the organic moderated reactor could be put in a ship without a shore prototype.

Tenders were asked for from Babcock & Wilcox, Mitchell (Fairfields), Nuclear Power Group (formerly A.E.I.-John Thompson and N.P.P.C.) for B.W.R.'s and

English Electric (Vickers) and Hawker Siddeley Nuclear Power Co for organic moderated reactors.

In the autumn of 1959, the Prime Minister transferred merchant shipping from the Admiralty to the Ministry of Transport and invitations to tender were sent from the Ministry of Transport. Mr Ingamells fortunately continued to be Director of Merchant Shipbuilding and Repair and the Numarcom Committee structure was kept.

Tenders were sent in by the end of July 1960, but no announcement of the result has yet been made. Technical assessments were complete about the end of 1960, and a whole year has been wasted since then. Meanwhile one tenderer, the Hawker Siddeley Nuclear Power Co, has collapsed from want of support and been disbanded. The other firms are disheartened.

In August 1961, rumour had it that no reactor was to be ordered from the tenderers as no reactor in Stage I could be economic, but that the Government would vote money to develop a steam-cooled heavy water moderated reactor (classified Stage II by Numarcom) and a high-temperature gas-cooled reactor (Stage III). However, Mr Selwyn Lloyd had another financial crisis during the month and said he could not produce the money. Mr Marples had again to stonewall his questioners, asking him when anything was going to be done about a nuclear merchant ship.

On 8 November 1961, Mr Marples said that, though no nuclear reactor for a ship is to be ordered, the A.E.A., with the help of industry, is to carry out research and development of marine reactors. The only hope is for the A.E.A. at once to place a contract with industry and let private enterprise supply the drive and urgency which are needed.

Prospect of Economy

The reactors which could go to sea now are quite uneconomic in any ship but with further development there is a prospect of the steam-cooled heavy-water moderated reactor, the high temperature gas-cooled reactor and just conceivably the direct boiling water reactor, becoming competitive in large liners, though not yet in low powered tankers.

All United States Navy submarines and ships have pressurised water reactors, so too has our first nuclear submarine *Dreadnought*, being built at Barrow, which will commission next year. All our future warships should be nuclear powered to render them independent of oil supplies, but to do this the price of nuclear power must be reduced by developing a much cheaper reactor than the P.W.R.

The British submarine prototype machinery now being installed at Dounreay also has a P.W.R. but the primary circuit is of low alloy steel, not austenitic. If it succeeds, a big reduction in the cost of water reactors should be possible, and fears of failure of stainless steel from chloride attack eliminated.

Babcock & Wilcox (U.S.) have a contract from the A.E.C. to investigate a P.W.R. with a "spectral shift," meaning that the hardness of the neutron spectrum is varied, and hence the reactivity is varied also by altering the proportions of light and heavy water in the primary circuit. This increases the core life with full xenon override, without having to use burnable poisons and enables control rods to be dispensed with, except to start-up, shut-down and scram. This proposal is for a large shore reactor with a thorium blanket and is not meant for sea.

The best way to choose a marine reactor is by its seaworthiness, and by its development potential, applying the principles by which we have slowly improved the performance and economy of our fossil fuel ships, that is by striving for:

(i) High thermal efficiency which means, for a reactor, high coolant outlet temperature and low coolant pumping loss. Carnot and Rankine are still sound guides.

(ii) Efficiency of combustion. This implies good neutron economy and a high conversion ratio of U238 to plutonium resulting in a high burn-up and long life of the core. Hot spots in the core should be avoided by flux flattening, thus allowing increase of the coolant outlet temperature.

(iii) Cheap fuel costs. Natural uranium or as little enrichment as possible. This again requires good neutron economy by avoiding absorptive materials and leakage.

The reactor must be reliable when handled and maintained by ordinary sea-going chaps. Special training is expensive and should be made as short as possible by fitting a reactor which is simple to maintain and requires no vast knowledge of physics or chemistry.

A likely trouble, if extensive nuclear training is given, is that men so trained find that they can command far higher pay with easier conditions on shore. Swallowing the anchor may become an epidemic. The U.S. Navy has hand-picked the officers and men for its nuclear submarines and given them expensive and lengthy training, but they are finding difficulty, with only a third of the submarines ordered in commission, in finding men of the right calibre. Two crews are needed for each boat.

Fuel Changing Problems

Maintenance also involves dockyard facilities and mateys. Changing the fuel may be the worst routine job, particularly in a P.W.R., in which the weld of the pressure vessel lid has to be cut, control rod extensions cut off, the bolts removed and lid lifted, all by remote control. It is a difficult, complicated, dangerous, expensive and lengthy procedure for any ordinary dockyard, civil or naval; special training and very special gear are needed, including dry runs of the whole operation on a mock-up.

The B.W.R. has a lower fluid pressure to resist than a P.W.R., and the O.M.R. a lower pressure still, so the pressure vessels are lighter and the fuel change is easier, but terphenyl is opaque. The cost of equipping the dockyard should be taken into account when choosing the reactor.

Reactors in which individual fuel elements can be changed or withdrawn without lifting the pressure vessel lid, have even greater advantages in a ship than on shore, over types where the whole core has to be changed. The charge machine may be carried on board and punctured elements removed at sea, which makes a fuel element failure less disastrous.

The B.W.R. with its lower pressure and more constant temperature in the primary circuit is easier for the engineer to design than the P.W.R. It has the same corrosive properties of water to resist and in addition the reactor has the ordinary boiler troubles due to solids left behind as the feed water evaporates and also the problem of keeping the correct water level. The E.B.W.R. has just run into trouble from scale and crud deposition in the fuel elements. The B.W.R. has swung into popularity because it was found that it could be forced much more highly than as at first designed, which brought down capital cost per kW, and the steam voids causing changes of reactivity gave less trouble on shore than expected.

From some thousands of conceivably possible reactor types, five are at present favoured for merchant ships:

(1) Pressurised water—P.W.R.
(2) Boiling water—B.W.R.
(3) Organic moderated—O.M.R.

(4) Gas-cooled—G.C.R.
(5) Steam-cooled heavy water moderated—S.C.H.W.R.

P.W.R.—Each of the other four reactors can match and in most cases better the steam conditions and neutron economy of the P.W.R., but its seaworthiness (in its warship form) alone has been proved and that beyond all doubt. Spectral shift may bring down its fuel cost but its capital cost is bound to be high.

B.W.R.—In contrast to the P.W.R., this reactor allows boiling directly in the pressure vessel with the consequence of lower pressures in the primary circuit. Steam is generated at the saturation temperature corresponding to the pressure. Much lower fuel cost is claimed than for P.W.R. but this is due to a larger factor of optimism caused by lack of experience. If elimination of salt leaks in condensers and coolers makes a direct cycle possible, no heat exchangers are needed. Coolant pumping power is high to keep the voidage deficit low. Because the neutron moderation is influenced by the fraction of steam voids in the water, the B.W.R. is very sensitive to variations in steam demand; as a consequence, stringent pressure sensing and water level controls are needed and it is doubtful if these will work in rough weather.

If the automatic maintenance within fine limits of both steam pressure and water level are essential, the boiling water reactor is unseaworthy.

O.M.R.—In the organic moderated reactor, using liquid terphenyl as the moderator and coolant, superheated steam at 460 lb/sq in, 580 deg F can be produced without boiling, at reactor pressures as low as 50 lb/sq in. The spontaneous ignition temperature of terphenyl is about 1,000 deg F, but the maximum temperature of the coolant is limited to lower than this by pyrolysis. The terphenyl decomposes (or polymerises) to an appreciable extent when hot and under irradiation, which necessitates the removal of its tar-like residue and replacement of the fluid. The basic simplicity of the terphenyl reactor is thus spoilt by purification and distillation systems as well as by systems for removal of gases and their recombination or discharge. Fire risk exists and the smell is pervasive; some say geraniums but others tom cats. Owing to low thermal efficiency and poor neutron economy (due to control rod and burnable poisons and hydrogen in the organic fluid) the fuel cost is almost as high as in a P.W.R.

G.C.R.—Some believe that the gas-cooled reactor with gas turbines has a future at sea but, to beat steam, temperatures above 1,400 deg F are needed. The reasons marine engineers fight shy of high steam temperatures are the fouling of, and the vanadium attack on, superheaters and the expense of austenitic steel. Nuclear power cuts out the first two troubles and the high-temperature materials for gas turbines cost fully as much as for steam turbines. Steam up to standard marine boiler practice can probably be produced with the high-temperature gas-cooled reactor using a heat exchanger. This reactor system has the basic simplicity of the O.M.R. The M.G.C.R., with its beryllium oxide moderator and helium coolant, is the safest of these reactor types as regards radiation, because, the helium does not become radioactive, the reactor pressure vessel contains high pressure gas and is liable to irradiation embrittlement, but the energy stored in the core is low. If collision floods the core with sea water it may become supercritical and explode or melt. The control of reactivity is entirely dependent on control rods worked off nucleonic instruments. With the graphite moderator a fire risk exists and carbon dioxide becomes radioactive. As gases are low density materials, a fifth of the reactor core can be considered open spaces and this causes extensive neutron leakages. The pumping of the blowers which circulate the gas is about 10 per cent of the total reactor power. The use of gas turbines obscures this loss, but the closed-cycle gas turbines require much development to become seaworthy.

Need for Action

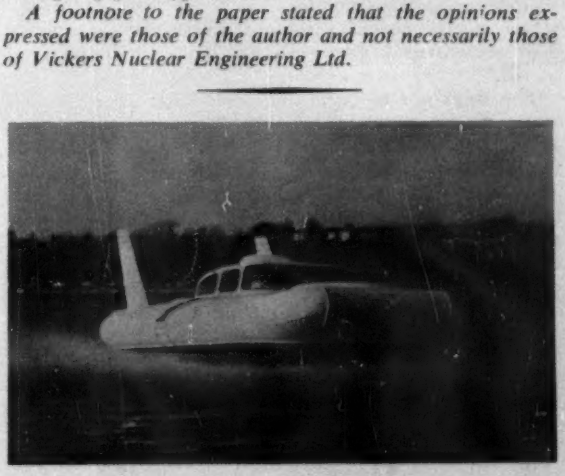
We must develop now a reactor for a merchant ship. Our shipbuilding industry, struggling hard against strikes and rising costs caused by wage demands and restrictive practices needs all technical support. A British nuclear propulsion system which has hope of competing with oil in ships, combined with enlightened managerial and trade union policy, could restore our trade.

On the other hand if other nations get experience of building and operating nuclear ships while we have none, we shall find ourselves in a hopeless stern chase when the nuclear ship becomes economic. No private company or group can afford to develop a marine reactor system without Government support, as there is small hope of recovering development costs. Only the Authority has the irradiation facilities and site for a prototype reactor which are essential and the Treasury must find the money.

A programme to develop the British marine reactor should be drawn up at once by the Ministry of Transport and the Admiralty, under the Minister for Science. The A.E.A. should provide the irradiation facilities and a site at Winfrith (not at Dounreay, where wages and transport cause trouble).

At least £20 mn over five years should be voted now: (i) to develop rapidly a steam-cooled heavy water reactor to Rolls-Royce design; and (ii) simultaneously to install a seagoing prototype in a fast fleet tanker.

A footnote to the paper stated that the opinions expressed were those of the author and not necessarily those of Vickers Nuclear Engineering Ltd.



NEW MODEL CUSHIONCRAFT

Visitors to the Boat Show at Earls Court, London, next month will be able to see the prototype CC-2 Cushioncraft, which has been bought by the Ministry of Aviation. The CC-2 will be delivered after the Show to the Royal Aircraft Establishment, Bedford, where it is to be used in connection with a hovercraft research programme.

Designed and built by Britten-Norman Ltd at Bembridge Airport, Isle of Wight, the CC-2 is a ten-seater, powered by a Rolls-Royce V8 car-type engine. The vehicle is propelled and steered by thrust from the air-curtain jets, and no external propellers are used.

The CC-2 was built as an intermediate size vehicle in response to requests from many potential operators around the world who are seriously interested in a relatively cheap but completely amphibious machine. The selling price of a CC-2 in the U.K. will be under £20,000. It is 27ft long, 17ft wide, and has a normal gross weight of 5,500lb. It hovers at 12in to 24in according to load, and has a designed maximum speed of about 50 knots and a range of 500 miles.

NEWS FROM OVERSEAS

From THE SHIPPING WORLD'S Own Correspondents

Reduction in Italian Shipbuilding Capacity

A REPORT in the French shipping periodical *Journal de la Marine Marchande* states that an Italian Government scheme for the reduction of shipbuilding capacity in the country is to be put into force. Italy was requested by the European Economic Community to produce such a plan to allow Italian shipbuilding to dispense with subsidies after 1 July 1964. The plan provides for the reduction of the country's shipbuilding capacity from 750,000 grt a year to 550,000 grt a year. Three yards will be closed. The labour force, which is at present 38,000 men, will be reduced by 10,000 men. The re-employment of these men in other industries is not thought likely to be difficult, on account of the shortage of labour in Northern Italy.

Argentina to Order Ships

THE ARGENTINE GOVERNMENT is to ask on December 26 for tenders for the building and financing of 11 diesel-driven cargo ships for the State-controlled Lineas Maritimas Argentinas Line. Information about the requirements has been issued in advance to allow additional time for the preparation of bids, which have to be ready within 60 days of the date mentioned above. The tenders must also cover the financing of the construction of three other ships of the same type to be built in Argentine shipyards: tenderers, in fact, are being asked not only to arrange credit terms for the ships which they build themselves, but to provide additional credit for ships to be built elsewhere. A minimum of eight years credit is required.

The ships are to have a gross tonnage of 8,250 tons and a service speed of 17 knots. The length specified is 135m, breadth as 19.50m and depth 11.20m to shelterdeck and 8.37m to main deck. The draught is to be 24ft 6in. The cargo capacities for the majority of the ships are to be 389,000 cu ft for dry cargo, 70,000 cu ft for refrigerated cargo and 500 cu m (note the units) for liquid cargo, but for three or four of the ships the dry cargo capacity is to be reduced to 216,000 cu ft and the refrigerated capacity increased to 200,000 cu ft. Five holds are required. The propelling machinery is to develop 9,000/9,600 bhp, and the fuel and water capacities are to be 1,130 tons and 340 tons respectively. Firms can obtain all documents relating to the tender from Lineas Maritimas Argentinas, Departamento Licitaciones y Compras, 25 de Mayo 459, 9o piso, Buenos Aires.

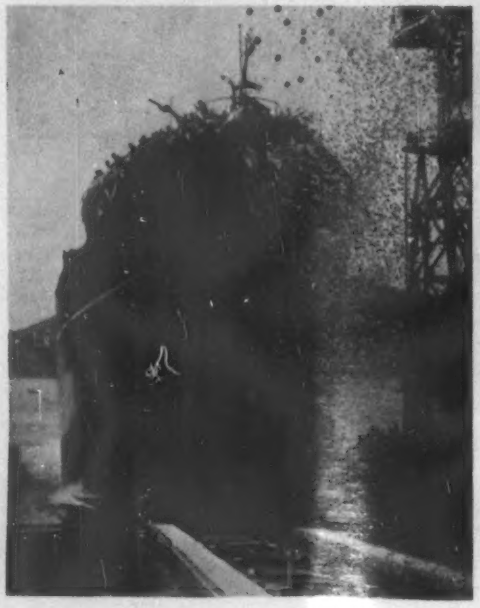
Israeli Service in Pacific

THE Zim Israel Navigation Company inaugurated in October the Pacific Star Line services, a monthly cargo service between the East Coast of the United States, Japan, Hong Kong and the Philippines. This line is competing with 28 other international shipping companies. Four of Zim's best cargo liners have been put into service, the *Negba, Ampal, Deganya* and *Gedera.* This new service is Zim's biggest venture in the international cargo liner trade. The Zim Company has now taken over its new pier on the Hudson River in New York, rented from the City of New York and comprising two berths for cargo and passenger traffic, a large space for cargo storage and handling and modern facilities for passengers.

St Lawrence in Winter

WINTER TRAFFIC via the St Lawrence is expected to make its head of navigation this winter at Three Rivers, 75 miles above Quebec, the former terminus, and only 90 miles below Montreal. J. Lauritzen Lines will make regular calls there, and Canadian Pacific Steamships have leased the ice-strengthened cargo vessels *Eskimo* and *Fort Chambly* from Canada Steamship Lines to operate from Liverpool and London.

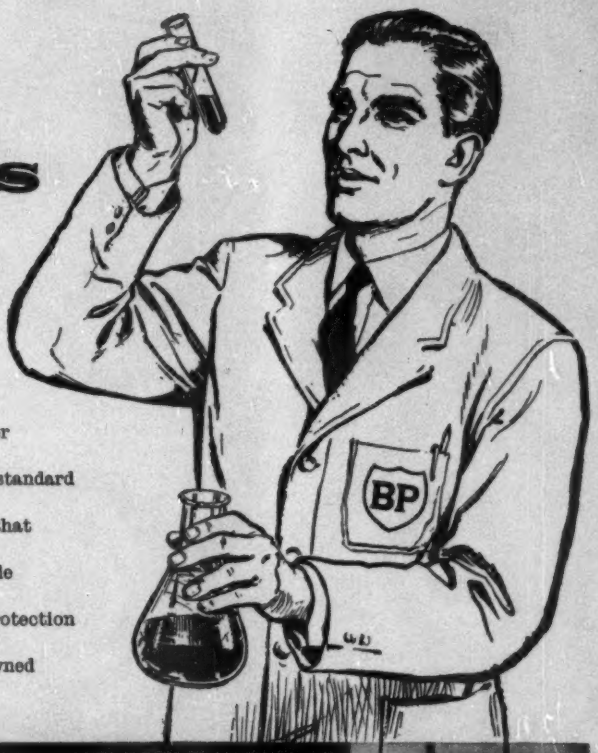
Since, because of bad weather, about 50 ships were still in the St Lawrence Seaway system at the announced closing deadline, midnight on November 30, authorities extended the deadline by 48 hours. This permitted ocean ships to clear but left six Great Lakes vessels still unloading grain at Montreal. These were to be allowed to return upstream in daylight hours for a few days, but the waterway was officially closed until April 15.



LAUNCH OF THE "JAG VIJAY"

The cargo vessel "Jag Vijay", 12,700 dwt, was launched early last month for the Great Eastern Shipping Co Ltd at the Innoshima shipyard of the Hitachi Shipbuilding & Engineering Co Ltd. The ceremony was observed with full Buddhist rites after which followed the traditional and colourful Japanese launching. The sponsor, Mrs Sheth, wife of a director of the owning company, is seen on the right with Mr H. Fukada, manager of the Innoshima shipyard, at the moment of cutting the cord to release the vessel. A second vessel of the same class, the "Jag Shanti", was launched later in the month

eye witness



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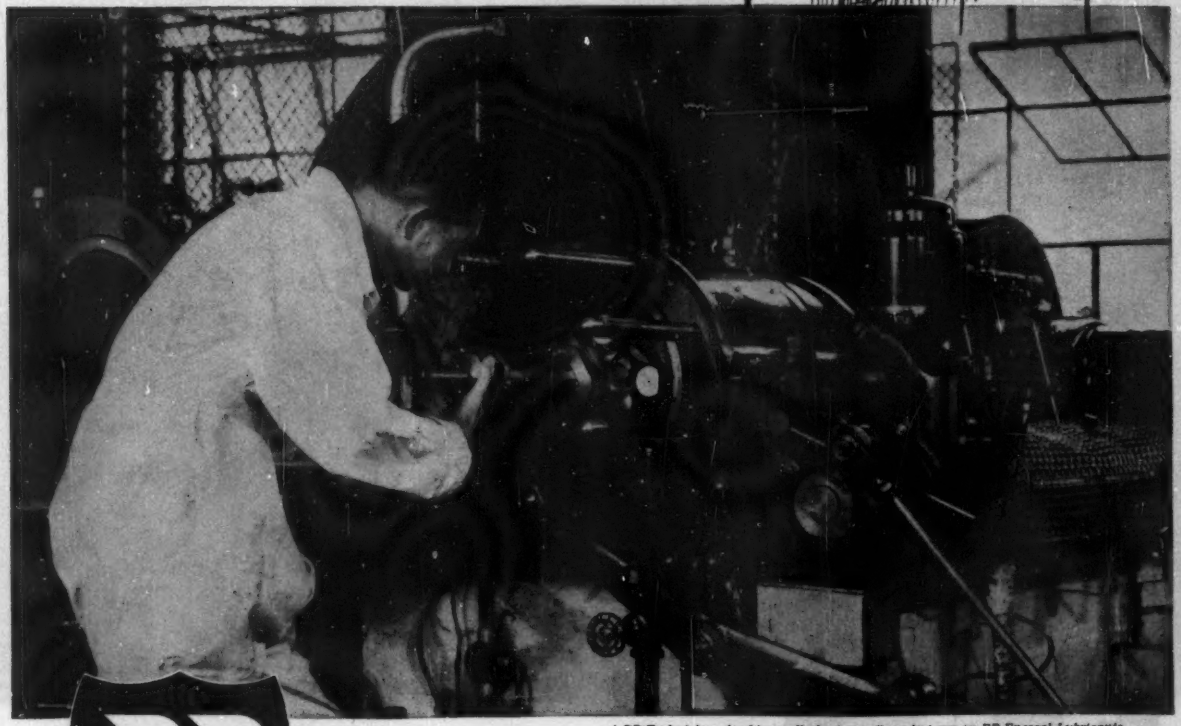

A BP Technician checking cylinder bore after a test run on BP Energol Lubricants.

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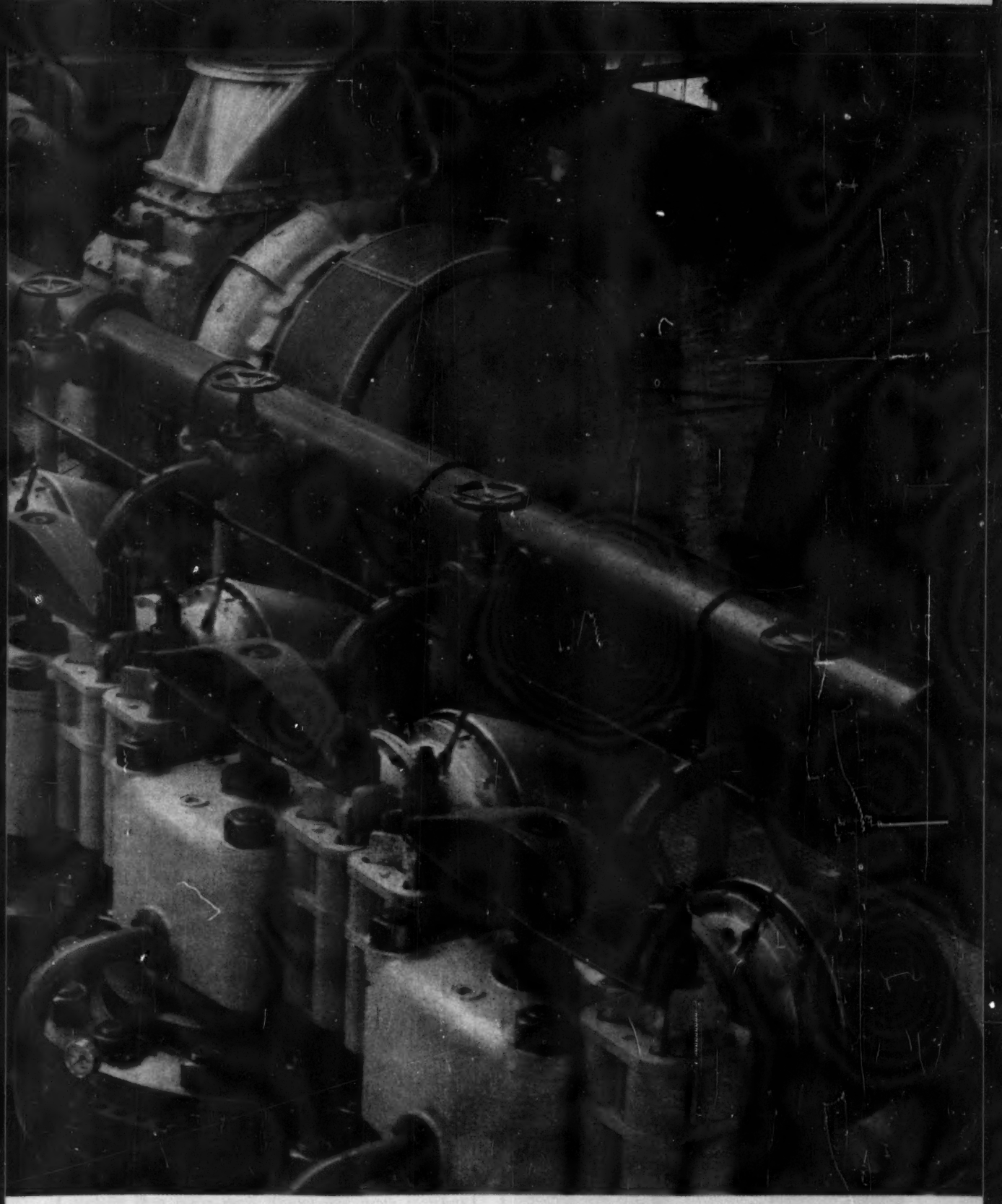

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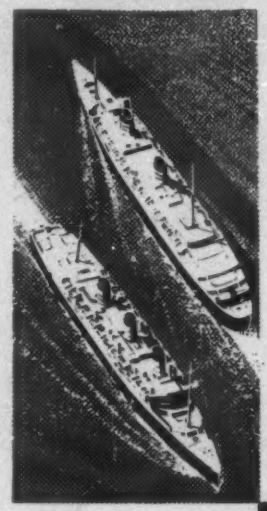

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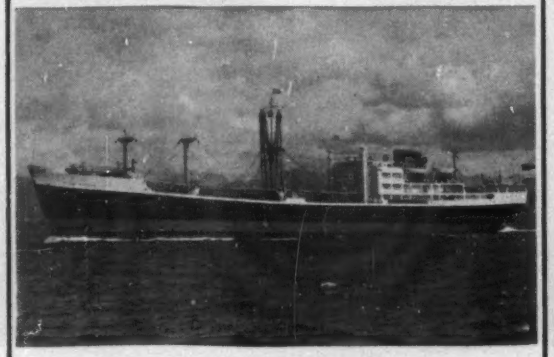

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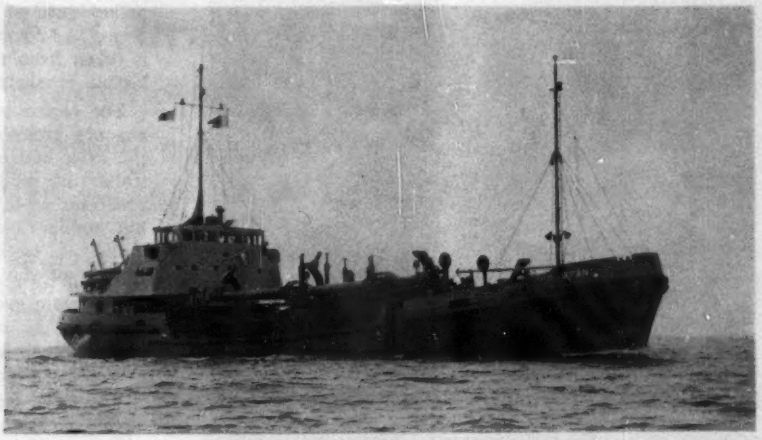
"AFAN" BUILT BY RICHARD DUNSTON



A SUCTION DREDGER of interesting design has been built at the Hessle yard of Richard Dunston Ltd for the British Transport Commission, South Wales Docks. This vessel, the *Afan*, is intended for dredging work in the shipping lanes of the Bristol Channel, where the bottom is sand. She has been designed by the shipbuilders to the requirements of Mr L. M. Sharp, Marine Engineer, South Wales Docks. The *Afan* is a hopper dredger, and is of trailing arm type. The operation of the ship is highly automated, all operations being controlled remotely from the wheelhouse.

The ship is 185ft in length, with a breadth of 37ft and depth of 16ft. The generating and propulsion machinery, accommodation and wheelhouse are arranged aft, and the pumping machinery forward. Between them lies the hopper, which has a capacity of 1,000 cu yd. Diesel-electric propelling machinery drives twin propellers, giving a service speed when loaded with spoil of about 10 knots.

Dredging Machinery

There are two electrically-driven 20-in Gwynne dredging pumps forward, each capable of a discharge rate of 9,800 galls/min. Each pump suction is connected to one of a pair of hydraulically-operated sluice valves in the ship's side to port and starboard, arranged as low as possible. The two trailer suction pipes, of 22in diameter, are stowed inboard when out of use. At the forward end of each pipe is a trunnion, and this can be engaged with a slide recessed into the ship's hull which leads down to the suction sluice valve. To bring the pipes into the operating position the trunnions are lowered down the slides until they engage with the suction valves, the whole pipe being kept parallel to the waterline. Once the trunnion is engaged, the after end of the pipe is lowered to the sea bed.

Each pipe is handled by three davits. Horizontal movement of the pipe is effected by means of small hydraulic rams controlling the davits, and vertical movement by electrically-driven winches and wire rope falls. The trailer pipes are fitted with flexible joints, and the suspension arrangements are such as to allow the vessel to continue dredging in a heavy swell. Trailer pipe depth recorders are installed.

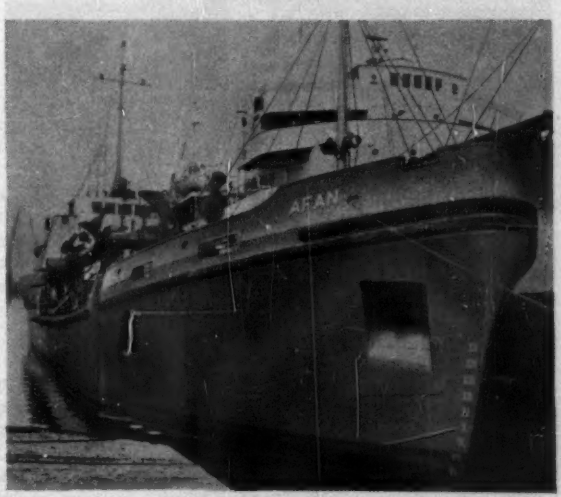
The 20in bore discharge pipe from each pump is led over the hopper well to a midships distribution box fitted with six Blakeborough hydraulic-operated sluice valves. These, in conjunction with the launder arrangements, permit the spoil to be directed to any part of the hopper well or overboard as required. The opening and closing of the 12 hopper doors at the bottom of the hopper well is controlled through four hydraulic rams of Vickers-Armstrongs manufacture. Each ram is capable of maximum pull of 90 tons.

From the outset, emphasis was placed on the idea that all operations must be controlled from the wheelhouse. An elaborate remote control system is installed, enabling the master to control propulsion machinery, trailer suction pipe positioning, dredging pump machinery and hopper doors. The draught of the ship forward and aft is automatically indicated in the wheelhouse. Loudspeakers are fitted at all important operating stations, connected to a microphone in the wheelhouse.

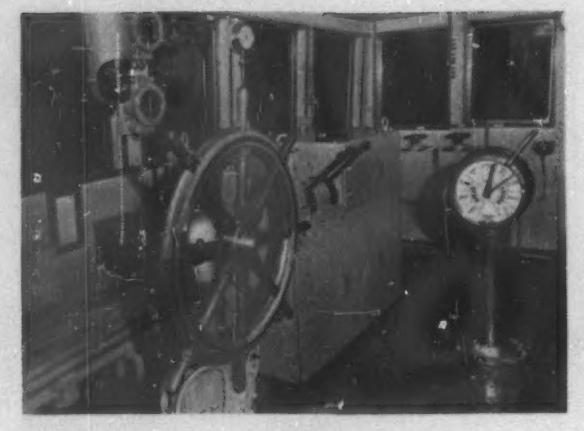
Sleeping, recreational, dining and bathroom accommodation is provided for four officers and eight crew, with central heating throughout. Cabins are lined with light-tone plastic finish, and up-to-date refinements include berth reading lights and mirror lights with electric shaver attachments.

Generating Plant

The diesel-electric propulsion and pumping installation has been supplied by the Brush Electrical Engineering Co Ltd, Loughborough, with the prime movers subcontracted to Ruston & Hornsby Ltd, Lincoln. Brush have also supplied the principal auxiliary motors and starters. Power for propulsion, pumping and auxiliary services is provided by two identical diesel-generator sets each comprising a Ruston & Hornsby type 7VEBCZ four-stroke



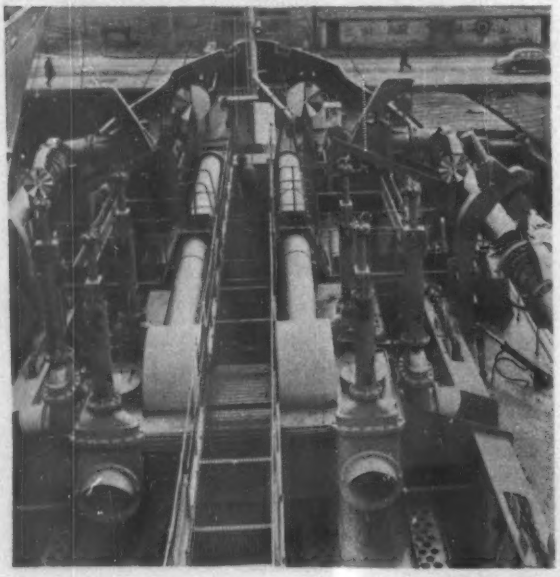
The break in the rubbing strake reveals the position of the slide for the starboard trailer suction pipe



In the wheelhouse. The bridge controls for the propelling machinery are to the right of the steering wheel

diesel engine, rated 920 bhp at 600 rpm, direct coupled to a 285/205-kW double-unit main propulsion pumping generator and a V-belt driven 94-kW 220-volts DC auxiliary generator. Each propeller is driven by a 610-hp 1,250-rpm propulsion motor through a Modern Wheel Drive reduction gearbox, and the two suction pumps are each driven by a 250-hp 310-rpm motor, with speed variation to suit future wear on pump impellers.

When the propelling machinery alone is in use, the armatures of the main generators and propulsion motors are connected in a single series loop. When pumping, the 205-kW section of each main generator is connected on an independent circuit to its respective pump motor, leaving the 285-kW sections of the main generators in series with the propulsion motors. Under these conditions, the power available at each propulsion motor is 350 hp at a propeller speed of 210 rpm. In the event of either one main generator set being out of service, each propulsion motor can develop 300 hp at a propeller speed of 200 rpm, or if one suction pump is being operated, each propulsion motor will develop 180 bhp at a propeller speed of 170 rpm. Power for the auxiliary switchboard and for excitation and machinery forced ventilation is taken from either of the generators through excitation circuit breakers arranged for preferential tripping.



Looking forward from the bridge, the Blakeborough remote-controlled valves controlling the output from the dredging pumps are prominent

The engine room controls, set-up switches, instruments, etc, are grouped in a single control cubicle on a flat at the after end of the engine room while the bridge controllers are mounted in a console in the wheelhouse. Pump generator set-up switches are also mounted on the bridge, but similar switches in the engineroom cubicle permit immediate isolation of the pump motors by the engine room staff should this be necessary.

The main generators and propulsion motors are forced ventilated by means of Keith Blackman fans with air being drawn from a position on deck and discharged over the commutators into the engine room.

The main generators are of the "three winding" type having separate shunt, self shunt and reverse series fields; and control of the propulsion motors is achieved by operation of port and starboard cam contactor controllers which vary the strength of the generator separate shunt fields and the motor fields simultaneously. In this application of modified Ward-Leonard control the strength and direction of the motor and generator fields is matched at all times, thus providing independent control of the propulsion motors and also ensuring that loop current is held to a sensible value when manoeuvring.

A "load regulator" device is fitted to each diesel engine for the purpose of relating the position of the engine fuel rack to the field strength of the respective main generator. In this way a number of functions are performed, the principal of these being to shed load from a failing engine and to provide fine adjustment of the generator fields for maximum output under differing conditions of propeller load.

An 18-kW 220-volts DC harbour duty auxiliary generator is driven by a Petter B3 1,500-rpm diesel engine, and there are two Hamworthy type M2L1 compressors, one being motor-driven and the other coupled to a hand start Petter type PHW2 diesel engine.

The *Afan* is the first ship of her kind to be built in the Humber area. All machinery, electrical, joinery, plumbing installation and deck fitting-out was carried out by the shipbuilders. The delivery contractor, A. Gillespie & Co, reported that during the voyage to Port Talbot heavy seas were encountered, and that the vessel behaved extremely well.

FISHER VALVE POSITIONER

A VALVE positioner has been designed and is now being produced by the Fisher Governor Co Ltd, Rochester, Kent—a member of the Elliott-Automation group. Known as the Fisher 3560V/P this is a completely new instrument designed to a specification which combines requirements of high accuracy, speed and sensitivity with low air consumption and ease of adjustment. It has a frequency response greatly superior to that of the Type 3500 which it replaces. An entirely new feature is the use of interchangeable characterised cams to enable the control valve characteristic to be more closely matched to the process characteristic. Where a characterised cam is installed in place of the standard linear cam, the relationship between instrument pressure and valve plug travel is changed so that greater instrument pressure changes are required to create a given change of flow through the valve. This helps to solve instability problems caused by an oversized control valve. The Fisher 3560V/P can be converted from direct to reverse action or changed to split range operation by means of a few simple adjustments and without any additional parts. It can be mounted on any type of Fisher actuator yoke by means of mounting pads. Special mountings can also be provided for any other make of diaphragm actuator.

V.A.G. Oil Hydraulic Actuators

HYDRAULIC OPERATION OF TANKER CARGO VALVES

A German firm of engineers, Vereinigte Armaturen-Gesellschaft, of Mannheim, has developed a range of hydraulically-operated actuators for opening and closing oil tanker cargo valves, some of which have already been fitted in vessels which include the *Esso Essen* and *Caltex Madrid*. The increasing size and capacity of oil tankers has brought about a corresponding increase in the size of oil cargo valves, together with higher pipeline pressures, thereby making it almost impossible for valves to be opened and closed by human effort within a reasonable period of time. For instance, a conventional 12-in sluice valve when fully closed is subjected to an unbalanced pressure of 100 lb/sq in and a total loading of 11,300 lb. By contrast, the oil cargo valves on board a supertanker may be of 24in diameter, and at a load of between 200 to 250 lb/sq in in the gate will have to bear between 90,000 and 112,500 lb—a load increase of 1:8 or 1:10 over the smaller valve.

The increase in time required to open the larger diameter valves manually is of the same order, and the obvious solution is to use hydraulic pressure, compressed air, electric motors or some other mechanical method. So far hydraulic power-operated valves have proved highly reliable and also suitable for automation—a trend which is becoming increasingly popular.

However, there seems to be no proof that the well-established sluice valve of conventional design will be able to hold its ground, since the butterfly valve has been widely accepted and successfully installed during recent years, though so far this has mainly been in land installations. The advantages of this type of valve is that it requires a comparatively small operating power at a much reduced stroke, and that it saves a considerable amount of space, since it needs much less head room than a sluice valve of the same bore.

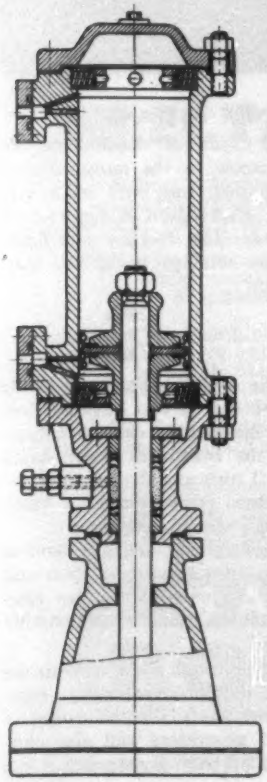


FIG. 1: Sectional drawing of V.A.G. piston-operated valve

Hydraulic actuators have for a long time proved their efficiency and dependability under severe conditions of operation, and seem to have become the most popular method of handling cargo oil valves. They are simple in design and rigid in construction, and when they are accurately assembled maintenance is reduced to a minimum. Since all moving parts are submerged in an oil bath, very little wear will occur even after a long period of service.

There are, however, two different systems of hydraulic actuators available: the well-known piston type and a rotary prime mover of the positive displacement type. Both can be employed for any duty in connection with cargo oil valves—on deck, within the tanks or in the pump room, and both are supplied by V.A.G. Either system has its advantages and handicaps. With the piston and cylinder actuator it has been found difficult to indicate positively the position of the valve's closing member. This refers to indication at close range as well as to remote control. Another disadvantage of the piston type is that it is almost impossible to fit an emergency actuator unless some very clumsy mechanical gear is accepted. Emergencies can be met with, of course, by installing a portable hand pump. It stands to reason that in this case some additional connections and valves should be provided on the power distributing pipeline system. The advantages are a comparatively low first cost, high efficiency and consequent savings in installation, apart from the feasibility of repair work being carried out on board when necessary.

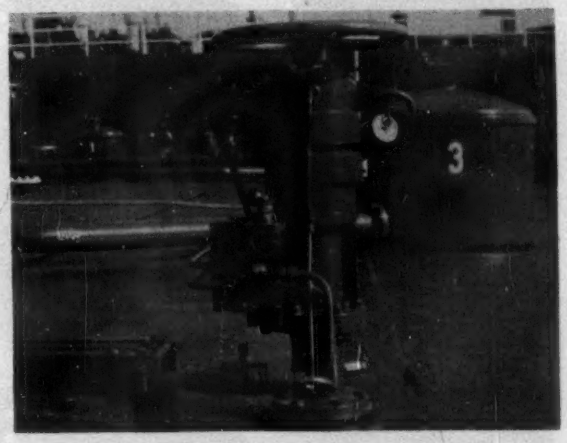


FIG. 2: A V.A.G. 12-in i.d. valve on the "Esso Essen". This valve is powered by a hydraulic rotary motor

Hydraulic Rotary Motor

The hydraulic rotary motor also operates on the principle of positive displacement, i.e. pistons are again the actuators, even if it is not easy to see them as a component of the design. For both local and remote emergency drive simple solutions are available, since an extended valve spindle and a handwheel will suffice. The rotary drive is self-locking, and there is no risk of the closing member of the valve moving on account of vibration on board ship. The gate's position can be given by pointer and scale on the spot, or it can be transmitted to a remote control room. The starting torque of these rotary drives is equal to full load, and operation is practically noiseless.

Fig. 1 presents a sectional drawing of a V.A.G. piston-operated valve with a device to hold the piston in its upper or lower dead centre. This seems to be a new idea which may prove very useful in countering the effect of vibration on board ship. To stop the piston in intermediate positions, additional non-return valves and some further gear can be provided. Opening and closing is effected in such a way that the gate cannot jam after having been forced into its fully closed position.

FIG 3: V.A.G. hydraulic motor-operated valves on the "Caltex Madrid"

Fig 2 shows a V.A.G. valve of 12-in i.d. for 10 atm (150 lb/sq in) working pressure in the *Esso Essen*, and Fig. 3 shows a valve of 24-in bore subject to a working pressure of 16 atm (228 lb/sq in) in the *Caltex Madrid*. Both types are driven by rotary hydraulic prime movers. Limit switches are provided at each end of the stroke, thus throttling and subsequently cutting off the flow in the power line just before the gate has to come to a standstill. A four-way circuit-changing switch takes care of all functions of the valve such as opening, closing and stopping.

A further development in rotary hydraulic actuators is shown in Fig. 4. The hydraulic system is kept under constant pressure in order to provide full torque at all times at the driving spindle of the rotary actuator. The power pack mainly consists of an electrically-driven oil pump supplying high pressure oil (120-150 atm or 1,700-2,150 lb/sq in) to the distributing line and to a gas-loaded hydraulic accumulator. Manometric switches connect and disconnect this electric motor according to the fall or increase in pressure, thus keeping the latter at the minimum (i.e. at the aforementioned figures of 120-150 atm). The precaution has been taken of arranging that the cargo oil valve is closed with only half the torque used for opening it. This difference in torque is produced by means of a regulating valve which becomes inoperative when the direction of flow is reversed.

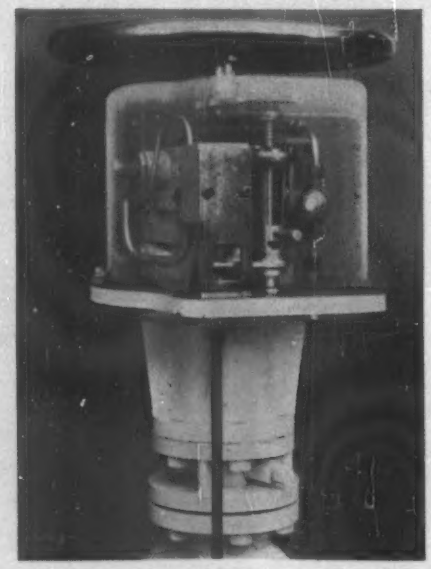
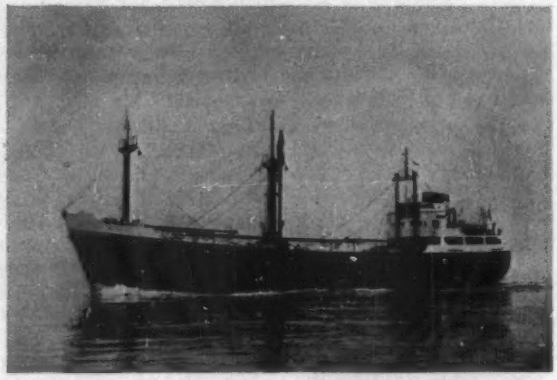


FIG 4: In the actuator shown above the free space inside the casing is filled with lubricating oil to prevent wear and corrosion. The casing here has been made transparent to show the mechanism inside

The complete actuator, comprising the hydraulic rotary motor and all valves, gear and fittings, is assembled in one unit and totally enclosed in a corrosion and pressure-resisting casing: the only elements protruding from the casing are the driving spindle and three unions for connecting up to the power lines. The free space inside the casing is filled with a high-grade lubricating oil in order to prevent wear and tear, as well as chemical effects of any kind. This also prevents the accumulation of explosive gas inside the casing, thus making it possible to employ this sealed actuator pack even in danger areas, such as most of the valve positions in tanker service. Drive control is effected as described above by a circuit-changing switch which can be either attached to the cargo oil valve itself or elsewhere on deck, or for instance in the pump room.



COASTER FOR NEW ZEALAND

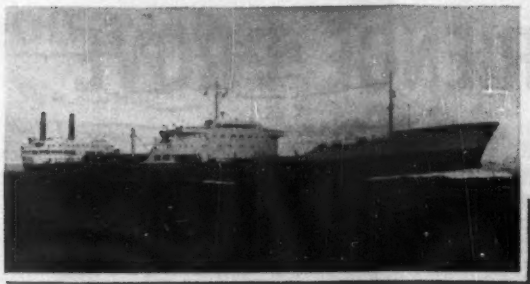
A RECENT DELIVERY from the Clydeside shipbuilders Jas. Lamont & Co Ltd, Port Glasgow, is the motor coaster *Pukeko*. This vessel, of 1,250 dwt, was built for a firm of New Zealand shipowners, Richardson & Co Ltd, of Napier, for their coasting trade. The *Pukeko* is a flush-decked shelterdecker, her gross tonnage being 960 tons. Her principal dimensions are:

Length o.a.	230ft
Breadth	38ft 2in
Draught	13ft 4in

A single hold extends from the forepeak bulkhead to the engineroom bulkhead, and is served by two large hatches. These have wooden covers on the weather deck, but flush-type steel hinging covers on the tweendeck. Each hatch is served by four derricks, of 3 tons and 5 tons capacity, and in addition there is a 15-tons derrick at No 2 hatch for handling special loads. The winches are electric.

All the accommodation is arranged aft. Mechanical ventilation is provided for the lower accommodation and the engine room, while other accommodation has electric fans. Climatic conditions are of course never extreme in New Zealand.

The main engine consists of a British Polar two-stroke seven-cylinder diesel engine of direct-reversing type, directly coupled to the propeller shaft. Electric power is provided by two 85-kW diesel generators and also—unusually in a small ship—by a shaft-driven generator.



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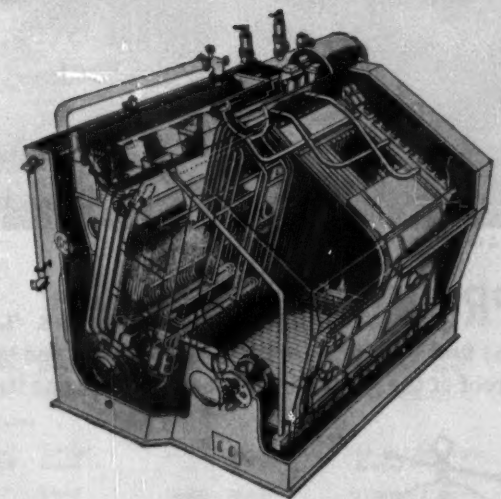

Cut-away view of Selectable-Superheat boiler—a compact single furnace unit providing simple, positive control of steam temperature by a system of differential dampers to adjust gas-flow through the "superheated" and "saturated" sections of the boiler. Well-proved in both naval and merchant service.

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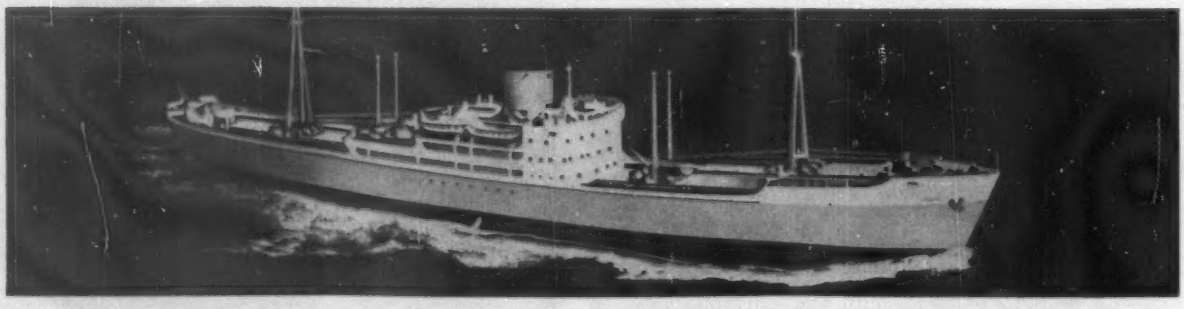

PROVED IN SERVICE M.S. 'Lukala', owned by Compagnie Maritime Belge S.A., was the first vessel to use Caltex Super DCL and has used it continuously for the past six years. Conclusive proof of the excellence of this lubricant and its trouble-free qualities.

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Oil Topics

SHELL INVESTMENT IN U.K.

SHELL companies invested more than £200 million in eight year to finance the expansion of their United Kingdom facilities required to meet the growth in oil demand which took place between 1952 and 1960. This was said by Mr H. Wilkinson, chairman of Shell Tankers Ltd and a managing director of the Royal Dutch/Shell Group, at Birkenhead on December 8 following the christening of the 48,500-tons tanker *Otina* from the yard of Cammell Laird (Shipbuilders & Engineers) Ltd. He said that the United Kingdom had a greater consumption of oil than any country in the world outside the United States, and that Shell companies supplied nearly a third of all the petroleum consumed in Britain. "Since the war, orders for two million tons of tankers have been placed in British yards by Shell, but I feel I must point out that as far as we are concerned—and, I would hope, other tanker owners as well—there will have to be a pause in the ordering of additional new tankers to allow demand to catch up with supply, and absorb the heavy world surplus of tanker tonnage which has been for some years, and still is, weighing so heavily on the industry as a whole."

Few Tanker Buyers

THERE are now few hopes of any improvement in tanker freight rates in the immediate future, and according to the current report of R. S. Platou A/S, Oslo, this pessimistic outlook is likely to depress second-hand tonnage values as far as tankers are concerned. Nevertheless the report notes that buyers for tanker tonnage are still to be found, although their buying activity is very selective and they are very much on the lookout for what the report calls "popular" tonnage. A slight drop in laid-up tonnage figures for tankers is reported. At the end of October about 362,000 dwt of Norwegian tankers were idle, but at the end of November this figure had gone down to 310,000 tons, although part of this at least is likely to have been the result of sales of ships and not due to ships going back into service. The corresponding world figures, excluding M.S.T.S. tonnage, were 3,300,000 tons at end-October, and 2,868,000 at end-November.

RECENT SHIP SALES

MOTOR vessels *Cape Agulhas* and *Cape of Good Hope* (14,200 dwt, 9,677 grt, 5,830 nrt, built Kobe 1959 by Mitsubishi Heavy Industry Reorganised) sold by Cape Ocean Transport (Pty) Ltd, Cape Town, to T. Klaveness, Oslo, and renamed *Surna* and *Sefra* respectively.

Motor vessel *Titania* (10,090 dwt, 6,704 grt, 4,081 nrt, built 1937 by Kockums M.V.) sold by Wilh. Wilhelmsen, Tonsberg, to Greek buyers with prompt delivery and renamed *Aristotelis*.

Motor bulk carrier *Hector Halcyon* (22,000 dwt, 15,622 grt, 9,460 nrt, built 1961 by Jos. Boel & Fils) sold by Hector Whaling Ltd to Court Line Ltd for £1,115,000.

Motor vessel *Ashburton* (9,433 dwt, 5,023 grt, 2,773 nrt, built 1946 by Wm. Denny & Bros. Ltd) sold by Australind Steam Shipping Co Ltd to British flag for just under £200,000 with U.K. delivery.

Motor vessel *Moraybank* (10,230 dwt, 7,300 grt, 4,338 nrt, built 1945 by Wm. Doxford & Sons Ltd) sold by the Bank Line Ltd to Hong Kong trading buyers for about £140,000 with Jan/Feb delivery Far East.

Motor tanker *Silverdale* (16,700 dwt, 11,289 grt, 6,525 nrt, built 1952 by Lithgows Ltd) sold by Silver Line Ltd to Greek buyers for £205,000 to give charter-free delivery Greece May/June.

Motor vessel *Stevonia* (447 dwt, 384 grt, 185 nrt, built 1948 by Goole Shipbuilding & Repairing Co Ltd) sold by J. Wharton (Shipping) Ltd to Mr R. V. T. Hall, Arklow, for transfer to Eire flag. She was delivered at Goole.

Motor vessel *Petrel* (1,111 dwt, 921 grt, 482 nrt, built 1945 by the Goole Shipbuilding & Repairing Co Ltd) sold by General Steam Navigation Co Ltd to Thor Jensen, Oslo, and renamed *Petrell*.

Cargo steamer *Catalina S.* (ex-*Theo*, ex-*Bactria*, 3,550 dwt, 2,407 grt, 1,207 nrt, built 1928 by J. L. Thompson & Sons Ltd) sold by Capital S.A., Montevideo, to British Colonial buyers, and to be renamed *Bahama Pearl*.

Cargo steamer *Dumlupinar* (ex-*Marga Hemsoth*, ex-*Alpha*, ex-*Marga Hemsoth*, ex-*Croatia*, 1,991 grt, 1,260 nrt, built in 1888 by Blohm & Voss) sold by Denizcilik Bankasi T.A.O., Istanbul, to Italian shipbreakers.

Tank steamer *Elizabeth H.* (ex-*Irwin Russell*, 7,218 grt, 4,409 nrt, built New Orleans 1943 by the Delta Shipbuilding Co Inc.) sold by Windsor Tankers Inc., Monrovia, to Japanese shipbreakers.

NEW CONTRACTS

Shipowners	No. of Ships	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Delivery	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Alfred Holt & Co	1	Pass cargo	(8,000)	480	—	20	Two diesels	16,500	Burmeister & Wain	John Brown & Co
West Wales S.S. Co	*1	Ore carrier	28,000	—	1962	—	Diesel	—	—	Austin & Pickersgill
Govt. of Libya	2	Customs launches	—	(58)	—	—	Diesel	—	Rolls Royce	John I. Thornycroft & Co
Grangesberg-Oxelosund Trafik A/B	3	Salvage tugs	—	(115.25)	1962	11	Diesel	1,600	General Motors	Seawork
BP Tanker Co	1	Buoy layer	(300)	—	1962	—	Twin diesels	—	Davey Paxman	J. Bolson & Son
London Missionary Society	1	Mission vessel	—	85×23×(7.5)	—	—	Twin diesels	286	Gardner	Brooke Marine
Evan Thomas Radcliffe & Co	1	Cargo	11,380	—	—	14.5	Sulzer diesel	6,600	G. Clark	Bartram & Sons
Rowland & Marwood's S.S. Co	1	Cargo	12,200	—	—	14.5	Diesel	—	Wm. Doxford & Sons	Bartram & Sons
British owners	1	Tanker	1,300	—	1963	—	Diesel	—	—	Goole S.B. Co
Overseas Yards										
—	4	Tanker	80,000	—	1964	—	Turbine	—	Shipbuilders	Ch. de l'Atlantique
Philippine owners	1 (905)	Pass. cargo	5,800 (3,000)	—	—	16.8	Diesel	—	M.A.N.	Bremer Vulkan
Schulte & Bruns	1 (537)	Bulk carrier	22,700	—	—	17	Diesel	12,600	M.A.N.	Lubecker Flender-Werke
Egon Oldendorff	1	Cargo	4,250	—	1963	—	Tw.-scr. diesel	3,000	M.A.N.	Werft Nobiskrug
Xerovouni Shipping Co, Panama	1	Bulk carrier	28,000	—	—	—	Diesel	—	—	Astilleros y Talleres del Noroeste
Prebensen & Blakstad, Risor	1	Cargo	4,600	—	—	—	Diesel	—	—	Astilleros y Talleres del Noroeste
	1	Cargo	6,100	—	—	—	Diesel	—	—	Astilleros y Talleres del Noroeste

* Change of contract

LAUNCHES

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Dec. 5	Nigerian Fisheries	*Kiosa* (290)	Research trawler	(80)	—	—	Tw.-scr. diesel	—	—	Brooke Marine
Dec. 7	R. S. Dalgliesh	*Warkworth* (392)	Cargo	12,450 (9,500)	464.9 × 63 × 41.5 × 32(27)	13	4-cyl Doxford diesel	4,500	N.E. Marine	Bartram & Sons
Dec. 7	Tees Conservancy Commission	—	Barge	(540)	110 × 29.5 × 11.5(9.5)	—	NIL	—	—	Smith's Dock
Dec. 9	Shell Tankers	*Otina* (1276)	Tanker	48,500 (31,000)	(748) × 102.5 × 51.5 (38)	16	Geared turbine	16,000	Shipbuilders	Cammell Laird & Co
Dec. 11	J. Marr & Son	*Armana* (530)	Trawler	—	137.25 × 28 × 14.25	—	8-cyl diesel	1,050	Mirrlees Bickerton & Day	Goole S.B. Co
Dec. 14	C. Rowbotham & Sons (Management)	—	Tanker	1,200	—	—	Diesel	—	—	Drypool Eng. & Dry Dock
Overseas Yards										
Nov. —	Papachristidis	*Montrealer* (278) (After-part)	Bulk carrier	—	—	—	Geared turbine	—	—	Canadian Vickers
Nov. 11	Daian S.S. Co	*Dainanoh Maru* (926)	Cargo	9,590 (6,500)	—	17.2	Diesel	6,300	Shipbuilders	Mitsubishi H.I. Reorg.
Nov. 15	Portuguese Govt.	*S. Gabriel* (50)	Tanker	9,000 (6,000)	—	Geared	turbine	—	—	Estaleiros Navais de Viana do Castelo
Nov. 22	Polish Ocean Lines	*Lelewel* (154026)	Cargo	10,300 (7,969)	—	—	Diesel	—	—	Stocznia Gdanska
Nov. 25	Standard Tankers (Bahamas)	*Esso Austria* (E21)	Tanker	75,550 (49,300)	809.42 × 116.42 × 60.33(43.25)	17.25	Geared turbine	24,100	Shipbuilders	Ch. de l'Atlantique
Nov. 30	U.S.S.R.	*Vladivostok* (1168)	Fish factory	22,000 (17,000)	—	—	M.A.N. diesel	—	Shipbuilders	Kieler Howaldtswerke
Dec. 2	Hamburg-Sudamerikanische	*Cap San Antonio* (957)	Cargo	10,300 (7,400)	473.9(523) × 70.25 × (24.67)	20	9-cyl M.A.N. diesel	11,650	Shipbuilders	Howaldtswerke
Dec. 8	Anglo-Pacific Shipping Co	*Naess Clarion* (3905)	Bulk carrier	35,000 (23,800)	—	—	B & W diesel	—	Shipbuilders	Hitachi S.B. & E. Co, Innoshima
Dec. 14	Belgulf Tankers S.A.	*Belgulf Union* (1012)	Tanker	18,000	561 × 70	15.3	Geared turbine	—	Shipbuilders	Kawasaki Dockyard

TRIAL TRIPS

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Dec. 7	Ross Group	*Ross Kittiwake* (1467)	Trawler	(288)	107.5(120.67) × 24.5 × 12.5	—	5-cyl diesel	790	Ruston & Hornsby	Cochrane & Sons
Dec. 14	Hain S.S. Co	*Trefusis* (609)	Cargo	13,000 (7,650)	470 × 65 × 40(27)	14	Sulzer diesel	6,900	Wallsend Slipway	John Readhead & Sons
Overseas Yards										
July —	Hector (Western)	*Hector Halcyon* (1367)	Bulk carrier	22,000 (15,500)	562 × 74 × 46(31.42)	14.8	Diesel	7,500	Gotaverken	Jos Boel & Fils
July —	Snomen Tankkliva O/Y	*Wiiri* (1017)	Cargo	13,400 (9,300)	441 × 64 × 39.67 × (29.9)	15	9-cyl Sulzer diesel	6,300	Shipbuilders	Wartsila-Koncernen A/B Crichton-Vulkan
Oct. —	Snomen Tankkliva O/Y	*Wilki* (1066)	Cargo	13,400 (9,300)	441 × 64 × 39.67(29.9)	15	9-cyl Sulzer diesel	6,300	Shipbuilders	
Dec. 14	Svenska Orient Linien	*Thebeland* (1088)	Cargo	5,600 (4,300)	385(421.95) × 57.5 × (23.33)	16	6-cyl diesel	5,450	Gotaverken	
Dec. 22	U.S.S.R.	*Krasnograd* (1090)	Cargo	12,200 (9,000)	—	—	Sulzer diesel	—	—	
Aug. —	U.S.S.R.	*Ljgov* (1094)	Cargo	8,500 (5,400)	427.5 × 57.5 × 38.1(25)	16	Sulzer diesel	6,300	Shipbuilders	
Oct. —	U.S.S.R.	*Tshernjahovsk* (1095)	Cargo	8,500 (5,400)	427.5 × 57.5 × 38.1(25)	16	Sulzer diesel	6,300	Shipbuilders	
July 11	Sicilnaviglio S.A.	*Portovenere* (162)	Cargo	15,800 (11,190)	507.38 × 69.67 × 40.2 (28.58)	15	Diesel	8,400	Fiat	Cant. Nav. di Taranto
Oct. —	Mitsubishi Shipping Co	*Hampton Maru*	Cargo	12,000 (9,350)	—	18.3	9-cyl UEC diesel	13,000	Shipbuilders	Mitsubishi S.B. & E. Co, Hiroshima
Oct. —	Transocean Transport Corp., Philippines	*Transocean Shipper*	Cargo	12,853 (8,650)	452.58 × 61.58 × (2.9)	17.4	B & W diesel	6,300	Shipbuilders	Hitachi S.B. & E. Co, Sakurajima
Oct. —	Sohgo Kisen K.K.	*Sohgo Maru* (136)	Cargo	5,180 (3,350)	—	—	Diesel	—	—	Sasebo H.I.
Oct. —	U.S.S.R.	*Elgava* (109)	Tanker	4,200 (3,100)	—	—	Diesel	—	—	Gavle Varv
Oct. —	Jugoslavenska Linijska Plovidba	*Novi Vindolski* (166)	Cargo	6,500 (4,400)	410 × 62 × (24.25)	16.5	Diesel	7,300	Fiat	Brodogradiliste Split
Nov. —	Lineas Maritimas Argentinas	*Lago Nahuel Huapi*	Cargo	11,000 (7,500)	471 × 64 × (27)	16.5	Diesel	10,300	Fiat	
Nov. —	Sploshna Plovba	*Bela Krajina* (228)	Bulk carrier	18,400 (13,750)	527.58 × 70.58 × (29.5)	15	B & W diesel	8,300	Shipbuilders	Brodogradiliste Uljanik
Nov. —	Jugobanka, Beograd	*Ljubija* (232)	Bulk carrier	18,400 (13,750)	527.58 × 70.58 × (29.5)	15	B & W diesel	8,300	Shipbuilders	
Oct. —	U.S.S.R.	*Aksai* (116)	Tanker	4,000 (3,330)	318 × 48.5 × 22.33(20)	14	Diesel	2,900	Burmeister & Wain	Rauma Repola O/Y
Oct. —	U.S.S.R.	*Alagir* (117)	Tanker	4,000 (3,330)	318 × 48.5 × 22.33(20)	14	Diesel	2,910	Burmeister & Wain	Rauma Repola O/Y
Oct. 4	China Merchants S.N. Co	*Hai Tung* (1004)	Tanker	2,840 (2,400)	268 × 42.58 × 18.67	—	Diesel	2,080	—	Ingalls-Taiwan
Nov. —	Kosei Kaiun K.K.	*Hokusei Maru No 3* (186)	Cargo	4,330 (2,990)	—	15.4	Diesel	3,150	—	Osaka S.B. & E. Co
Nov. —	Shinto Kaiun K.K.	*Toyo Maru No 8* (178)	Cargo	(3,850)	—	—	Diesel	—	—	Osaka S.B. & E. Co
Nov. —	Universe Tankships	*Ore Venus* (83)	Ore carrier	45,500 (16,900)	710 × 102 × 51.5(35)	14.75	Geared turbine	12,500	G.E.C.	National Bulk Carriers
Nov. —	Hollandse Vrachtvaart Mij. N.V.	*Hollands Diep* (393)	Cargo	12,500 (9,500)	540.2 × 61.67 × (29.1)	14.25	Sulzer diesel	5,600	Werkspoor	Scheeps. "De Biesbosch"
Nov. —	Leif Hoegh & Co A/S	*Hoegh Biscay* (50)	Cargo	8,250 (5,500)	371.1 × 55.5 × 32.1 (26.5)	15	Diesel	4,100	Sulzer Bros.	Drammen Slip
Nov. —	Skibs A/S Golden West	*Grey Master* (371)	Bulk carrier	18,000 (12,700)	500 × 67 × 43.5(31.9)	14.5	G.V. diesel	8,950	Shipbuilders	Fredrikstad M.V.
Nov. —	Navarino Shipping Corp.	*Thalassoporis* (1388)	Bulk carrier	21,830	562 × 74 × 46(31.42)	15.8	Diesel	10,500	Sulzer Bros.	Jos Boel & Fils
Nov. —	Nippon Cement Co	*Senpoh Maru* (927)	Cement carrier	4,200 (2,730)	—	11.1	6-cyl Sulzer diesel	1,800	Shipbuilders	Mitsubishi H.I. Reorg.
Nov. —	Rederi A/B Transatlantic	*Arizona* (770)	Cargo	9,000 (8,700)	(471.5) × 65 × 29 (27.5)	17.5	6-cyl G.V. diesel	7,500	Shipbuilders	Gotaverken
Nov. —	American Export Lines	*Export Bay* (325)	Cargo	12,800	470 × 73 × 42.2(27)	18.5	Geared turbine	12,500	—	National Steel & S.B. Co
Nov. —	China Merchants S.N. Co	*Hai Hui* (1005)	Tanker	2,840 (2,400)	268 × 42.58 × 18.67	—	Diesel	2,080	—	Ingalls-Taiwan
Nov. —	Cie. de Navigation Mixte	*Blida* (370)	Cargo	3,400 (1,595)	281.5(304.5) × 44.58 × 17.33(23.25)	—	6-cyl. Sulzer diesel	4,100	Shipbuilders	Forges et Ch de Mediterranee

MARITIME NEWS IN BRIEF

Sir Colin Anderson, a director of the P & O-Orient Management Ltd, has been elected chairman of Ocean Travel Development. Mr A. S. Balding, newly-appointed director and general manager of Cunard, succeeds Mr Percy Furness as a member of the Council. Mr K. M. Campbell, a director of British India S.N. Co Ltd, has been elected to the Council in place of Mr E. J. Pakes who retired by rotation. Mr C. Keusseoglou, executive vice-president, Home Lines Ltd, has retired from the Council in favour of Mr F. C. C. Stanley, managing director in London for the Bergen Line.

Mr C. S. Mundy, a managing director of the British India Steam Navigation Co Ltd, has retired from the board. Mr A. J. M.-M.-Crichton has been appointed a director.

Mr V. R. Prehn, managing director of Ruston & Hornsby Ltd, Lincoln, has retired. Mr Prehn, who has been connected with the oil engine industry since 1921, joined the Ruston organisation in 1937. He is succeeded as managing director by Mr C. T. Alderson, who since the beginning of this year has been deputy managing director.

Mr E. I. N. Towle has been appointed manager, Industrial Applications Engineering Department, Rugby and Manchester, A.E.I. Motor and Control Gear Division. He succeeds Mr B. Pringle.

Mr Nils Astrup, Oslo, has been elected president of the Norwegian Shipowners' Association. He succeeds Mr Jorgen Jahre of Sandefjord.

Mr W. A. Adam has been appointed managing director of the three British Divisions of the Yale & Towne Manufacturing Co Ltd. Mr Adam succeeds Mr J. T. McCarley, who has been appointed director of manufacturing of the International operations of Yale & Towne with headquarters in New York.

Mr A. E. C. Drake has been appointed a deputy chairman of the British Petroleum Co Ltd following Sir Harold Snow's retirement as a deputy chairman and a managing director.

The death has occurred of Mr Arthur Hares, administrative assistant to the general manager of the Port of Bristol Authority.

Mr J. B. Forbes, who was until recently the Ben Line Far East co-ordinator, in Singapore, is to be an assistant manager in Edinburgh, where he will succeed Mr D. A. Thorburn. Mr Thorburn has become the new Far East co-ordinator.

The Minister of Transport has appointed Mr D. S. M. Barrie, a nominee of the British Transport Commission, to be a member of the Transport Users' Consultative Committee for the Yorkshire Area until 30 November 1963.

Mr R. Leslie Adam has been appointed a joint assistant secretary of the Liverpool Ship Owners' Association.

Mr A. C. Hardy, the well-known writer on ships, died early on Monday after a short illness.

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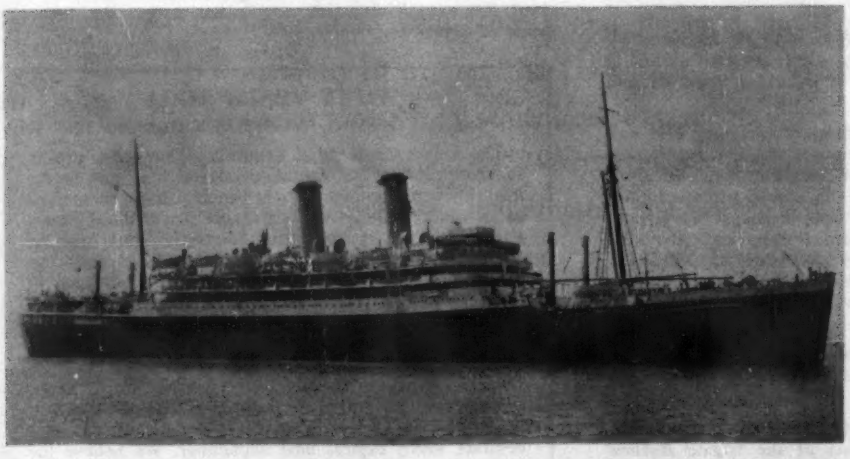
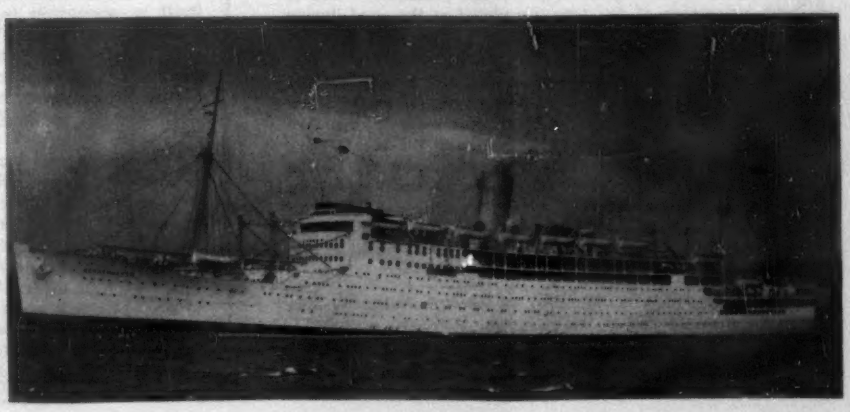
Mr Dudley Page, general manager for the Cunard Line in Canada, has relinquished his managerial duties, but will remain as special representative and will retain his seat on the local boards. Mr T. R. Smathers, at present deputy general manager, has been appointed general manager in Canada to succeed Mr Page, and that Messrs C. F. M. Turfus and F. J. Whitworth have been appointed assistant managers in Canada. Mr T. G. Miller, general passenger manager, and Mr J. L. Frost, general freight manager, will assume responsibility for sales promotion throughout Canada in their respective spheres. Mr G. McGonigal has been appointed deputy general passenger manager and Mr R. L. Broderick, deputy general freight manager.



TWO P & O LINERS FOR BREAKING-UP

The two oldest vessels in the P & O-Orient Lines' fleet, the "Strathnaver" and "Orontes" are to be withdrawn and sold for breaking-up after their current voyages. They were both built at the Barrow shipyard of Vickers-Armstrongs (Shipbuilders) Ltd, the "Orontes" in 1929 and the "Strathnaver" in 1931. The "Orontes" was the last of a class of similar vessels built to replace losses in the First World War, while the "Strathnaver" was the first of the famous "Strath" class. She and her sister ship "Strathaird," at present being broken up at Hong Kong, were originally built with three funnels two of which were removed during their post-war reconversion. Both have been strikingly successful ships and both served during the war as troopships each steaming over 352,000 miles in many theatres of war. For the last few years they have been serving as one-class (tourist) liners. They were due to be withdrawn next year but the dates were brought forward owing to the Australian Government's decision not to take up large provisional berth reservations for British migrants during the first five months of next year



FUNNEL CRESTS IN POLYESTER-GLASS

Philip & Son Ltd, Dartmouth, have recently completed a matching pair of funnel crests moulded from Cellobond polyester resin reinforced with glass fibre. The crests have been fitted to the passenger tender "Blarna" recently launched at Dublin. They are of traditional outline and embody the arms and motto of the Cork Harbour Commissioners for whom the vessel is building. Cellobond Polyester resins are manufactured and marketed by British Resin Products Ltd, Devonshire House, Piccadilly, London W1

THE National Association of Port Employers and the National Joint Council for the Port Transport Industry have moved to Three Quays, Tower Hill, London EC3 (telephone: Mincing Lane 7358).

THE stevedoring tariff at Rotterdam is to be increased by 12½ per cent from January 1. The increases also applies to the rates for tallying, supervision of assorting, overtime and extra work, etc.

THE MANY advantages and attractions of travelling one way by sea and one way by air are the subject of a new leaflet produced by B.O.A.C. and P & O-Orient Lines. Passengers are given a 10 per cent discount for round-trip, circle trip or round-the-world journey if they combine both forms of travel; and from January 1 to May 31 between Europe and Australia, and from August 1 to January 31 between Australia and Europe, it is even cheaper to combine one-way air and sea fares, since P & O-Orient Lines' off-season tickets are valid during these periods.

MR G. L. ATKINSON, general manager and secretary to Blyth Harbour Commissioners is retiring at the end of this month, after 23 years' service.

BLYTH DRY DOCKS & SHIPBUILDING CO LTD, Northumberland, have completed the conversion of the frigate *Rushen Castle* into an ocean weather ship for the Admiralty. This is the third conversion of this type completed at the yard during the past two years.

* * * *

FEARNLEY & EGER, of Oslo, have awarded a contract for repairs to their tanker *Fernmount* of about 34,000 dwt. to Smith's Dock Co Ltd. The ship was severely damaged by explosions when in the Mediterranean, and the repair work will consist of the construction of a new mid-body at the South Bank yard. This section of ship, which will be about 200ft long by 88ft beam, will after launching be towed to North Shields, where the damaged ship will be cut in two places. The new portion will then be floated into position and connected up in dry dock.

A SURVEY LAUNCH for the Port of Bristol Authority has recently been completed at the Hampton Boatyard of John I. Thornycroft & Co Ltd. The launch is to be used for hydrographic survey in the Port of Bristol, and for this purpose the necessary specialised equipment has been incorporated.

BRITISH ROAD SERVICES have, in common with all other hauliers, been faced with heavy increases in costs during the last 12 months. They are, therefore, adjusting their charges to obtain an overall additional revenue of 7½ per cent.

AN ORDER of substantial value for radar display units has been placed with the Electronic Apparatus Division of Associated Electrical Industries Ltd by the Swedish Navy Board. These units are to operate in conjunction with coastal surveillance radar equipment previously supplied by AEI.

THE AIRSCREW COMPANY & JICWOOD LTD, manufacturers of Weyroc products, have appointed William A. Swales & Co Ltd, Stepney Works, Manors, Newcastle upon Tyne, as marine agents for Weyroc in the Tyne, Tees and Wear areas.

WILLIAM POT N.V. will cease to represent Clarke, Chapman & Co Ltd in Holland from January 1. The representation will be taken over by N.V. Internationale Nautische Handel Mij, Maziestraat 5, Den Haag.

A LECTURE under the title of "The Development and Operation of Nuclear-Powered Submarines" is the fourth of the series of Special Winter Lectures arranged by the Institution of Plant Engineers for January 16. The lecturer will be Lieut Comdr G. M. Vahsen, who is the materials officer on the United States Submarine *Proteus* and it will be presented at 7 p.m. in the Institute of Marine Engineers, 76 Mark Lane, London EC3.

THE Freight, Agency and Chartering Departments of A. Johnson & Co (London) Ltd, have moved to Plantation House, Fenchurch Street, London EC3 (telephone: Mincing Lane 5831).

THE Council of the European Conference of Ministers of Transport has adopted a resolution approving a report on the classification of inland waterways and the standardisation of barges and structures such as locks. The proposals adopted take account of the new prospects opened up by the development of the "pusher" technique and continuous night and day navigation by radar.

THERE WILL be no Farnborough air show in 1963. The 1962 S.B.A.C. display will take place during the first full week of September.

FIFTY YEARS AGO

From THE SHIPPING WORLD of 20 December 1911

The Union-Castle Mail Steamship Company, subject to ratification of its shareholders, which is not in the least likely to be withheld, is henceforth to be merged in or controlled by the important Royal Mail Steam Packet and Elder Dempster interests. Thus will be brought about what will be indubitably the largest shipping combination in the world. It takes precedence of the International Mercantile Marine Company of New Jersey, the Hamburg-Amerika Line, and the Norddeutscher Lloyd; and in these record breaking days it is satisfactory to note that it is British through and through. One result of this merger will probably be a reconsideration of the position taken up by the Government of the Union of South Africa in respect of the mail contract which expires next September. We believe the Union Government will now think twice before setting itself in opposition to so strong a combination. Lord Pirrie and Sir Owen Philipps are assuredly not men to trifle with. It should be remembered, too, that already the Elder Dempster interests are largely African, and the new arrangement means British shipping supremacy from Morocco to the Cape.

The stranding of the P. & O. liner *Delhi* came with dramatic suddenness after the official announcement that the town of that name had been made the new capital of India. It will be one of the most serious casualties of the year, as the amount involved with hull, cargo, specie and baggage aggregated very closely on £1,000,000. As usual with the P. & O. Company the hull is uninsured. The specie consists of gold and silver insured for £300,000, which will probably be saved, but unless the weather improves there does not seem much hope of doing much for either the hull or the general cargo.

Armstrong

Armstrong Cork Company Limited, the originators and manufacturers of the ships decking compositions now known as ARANBEE, announce that their long association with Rowan and Boden Limited, will come to an end on 31st December, 1961, in accordance with the agreement between them.

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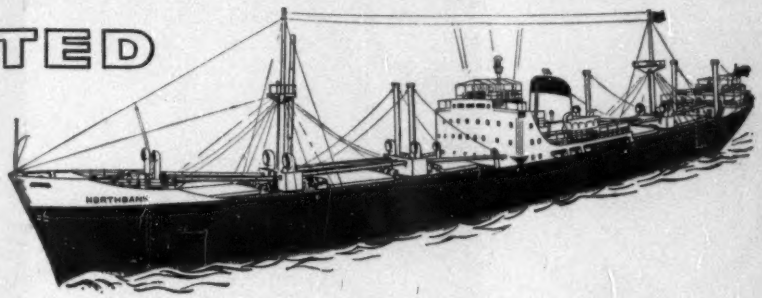

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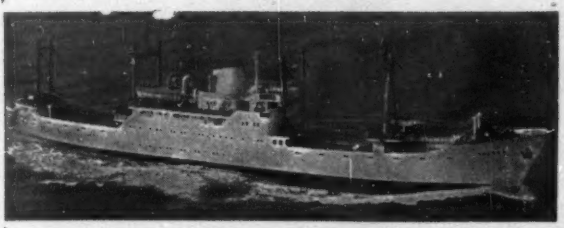

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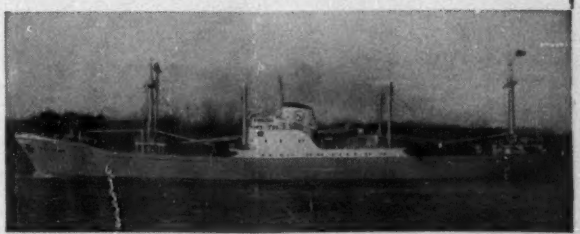

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